

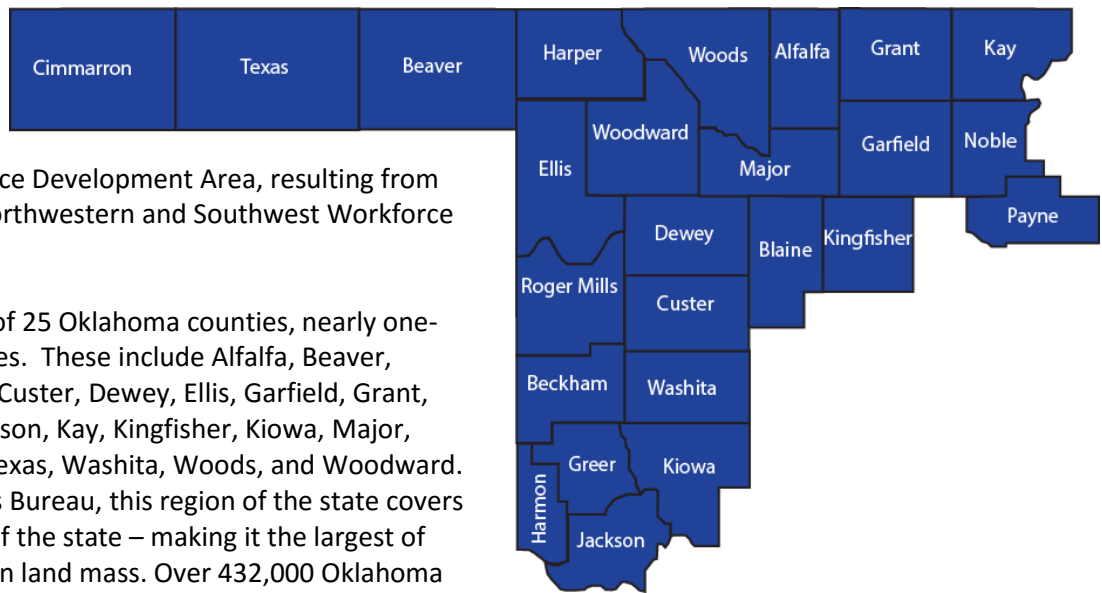
## Western Oklahoma Workforce Development Area Briefing

### June 2017

#### Overview

This analysis pertains to the newly created Western Oklahoma Workforce Development Area, resulting from the merger of the former Northwestern and Southwest Workforce Development Areas.

This new Area is composed of 25 Oklahoma counties, nearly one-third of all Oklahoma counties. These include Alfalfa, Beaver, Beckham, Blaine, Cimarron, Custer, Dewey, Ellis, Garfield, Grant, Greer, Harper, Jackson, Kay, Kingfisher, Kiowa, Major, Noble, Payne, Roger Mills, Texas, Washita, Woods, and Woodward. According to the U.S. Census Bureau, this region of the state covers 26,735 square miles – 38% of the state – making it the largest of the state’s workforce areas in land mass. Over 432,000 Oklahoma citizens reside in the 25-county area; approximately 11% of the state’s total population. Eight cities in the Area boast populations of 10,000 residents or more, including Altus, Elk City, Enid, Guymon, Ponca City, Stillwater, Weatherford, and Woodward.



Note that for simplicity, the Western Oklahoma Workforce Development Area will generally be referenced throughout this report as the “Area.” Sources for all data are cited. The most common data source utilized is EMSI, data release 2017.2.

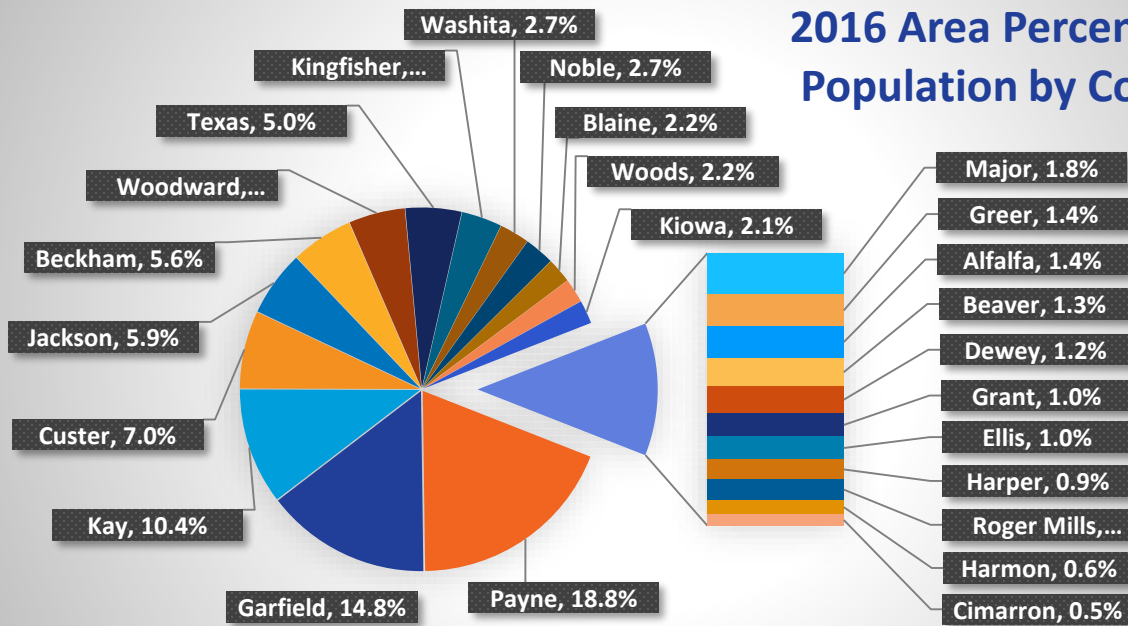
#### Population Breakdown by County

This report section examines the population of the Area by county. A chart, “2016 Area Percentage of Population by County,” follows the analysis.

- Payne County, the third smallest county in land mass at 697 square miles, is the most populous county in the Area with a reported 81,500 residents in 2016. This represents 18.84% of the Area population. Stillwater, the county seat of Payne County, is the second largest city in the Area with approximately 47,000 residents.
- Garfield County is home to over 64,000 individuals, the second highest population of the Area. The county seat, Enid, is the largest city in the Area with a reported population of just over 50,000.
- Despite being the second largest county in land mass at 1,841 square miles, Cimarron County is the least populous county in the Area, with only 2,164 residents reported in 2016. This equates to only one-half of one percent of the Area population.

- Between 2010 and 2016, the Area experienced an overall growth rate of 3.25%, a net increase of 13,610 residents. This small growth rate was fueled by population increases in 15 of the 25 counties. Payne County experienced the greatest increase in population, adding an estimated 4,069 individuals, an increase of 5.25%. Washita County grew the least, adding only 31 new residents, a growth rate of 0.27%. Custer County experienced the greatest percentage of growth at 9.84%, though this only equated to 2,700 new residents.
- In contrast, between 2010 and 2016, 10 Area counties decreased in population:
  - Cimarron County, -11.93% representing a loss of 293 residents;
  - Harmon County, -5.35%, -156 residents;
  - Beaver County, -4.29%, -242 residents;
  - Jackson County, -3.87%, -1,025 residents;
  - Kiowa County, -3.46%, -326 residents;
  - Kay County, -2.72%, -1,265 residents;
  - Greer County, -2.27%, -141 residents;
  - Blaine County, -2.02%, - 200 residents;
  - Grant County, -0.60%, -27 residents; and,
  - Noble County, -0.13%, representing a loss of 15 residents
- In addition to overall population representation, it is helpful to examine population density, measured in the number of persons living in a one-square-mile area. The Area is predominantly rural; 24 of the 25 Area counties exhibit population density rates of 60 persons per square mile or less. Payne County is the exception with a population density of approximately 117 persons per square mile. As indicated previously, Cimarron County possesses a large land mass area with a very small population, resulting in the lowest population density in the Area of fewer than 2 residents per square mile. As a point of comparison, the two counties in the state of Oklahoma experiencing the highest population density, Oklahoma and Tulsa, each display county-wide population densities of over 1,000 individuals per square mile.

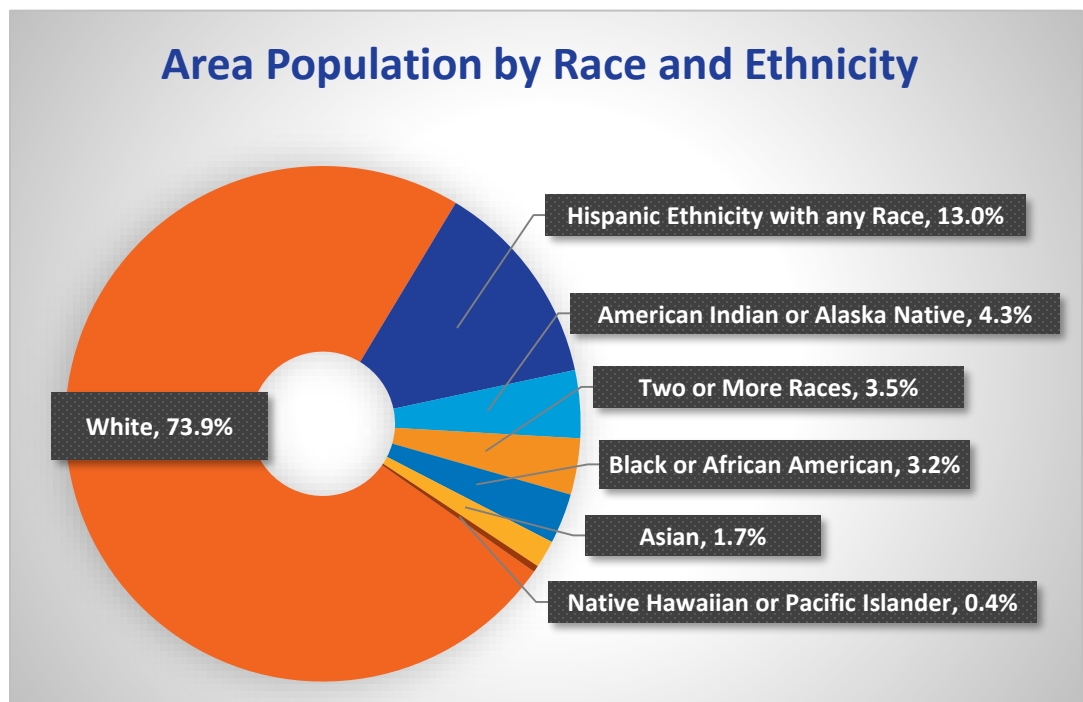
## 2016 Area Percentage of Population by County



Source: EMSI 2017.2

## • Population Breakdown by Race and Ethnicity

The chart to the right illustrates the racial and ethnic diversity of residents living in the Area. The racial categories designated by the U.S. Census Bureau are utilized. It should be noted that the Census Bureau categorizes “Hispanic,” not as a race, but as an ethnicity. As such, Hispanic is always reported in conjunction with another racial designator, i.e. “Black or African American, Hispanic.” Individual races included in the chart and cited in this analysis were reported as Non-Hispanic.



Source: EMSI 2017.2

- In 2016, over 319,000 Area residents identify themselves as “White.” This equates to 73.9% of the total Area population, a racial representation significantly higher than the statewide average for the white race which is reported at 66.1%.
- At 0.4% (1,791 total Area residents), individuals self-reported as “Native Hawaiian or Pacific Islander, Non-Hispanic,” represent the smallest racial category.
- Individuals of native descent are categorized by the Census Bureau as “American Indian or Alaskan Native.” For simplicity, individuals in this racial category will be referenced in this report as “Native American.” Despite the fact that the Area is home to the headquarters of five recognized Oklahoma tribes (Iowa Tribe in Perkins, Kaw Nation in Kaw City, Otoe-Missouri in Red Rock, Ponca Nation in White Eagle, and the Tonkawa Tribe in Tonkawa), this racial group is significantly under-represented in the Area when compared with the Oklahoma statewide population. Native Americans, Non-Hispanic, represent approximately 4.3% of the population in the Area compared with 8.2% across the state. When individuals identifying themselves as “American Indian or Alaskan Native, Hispanic” are included, the total Native American population in the Area rises to 5.1%. This figure remains significantly lower than the 9.1% Native American representation statewide, regardless of ethnicity.

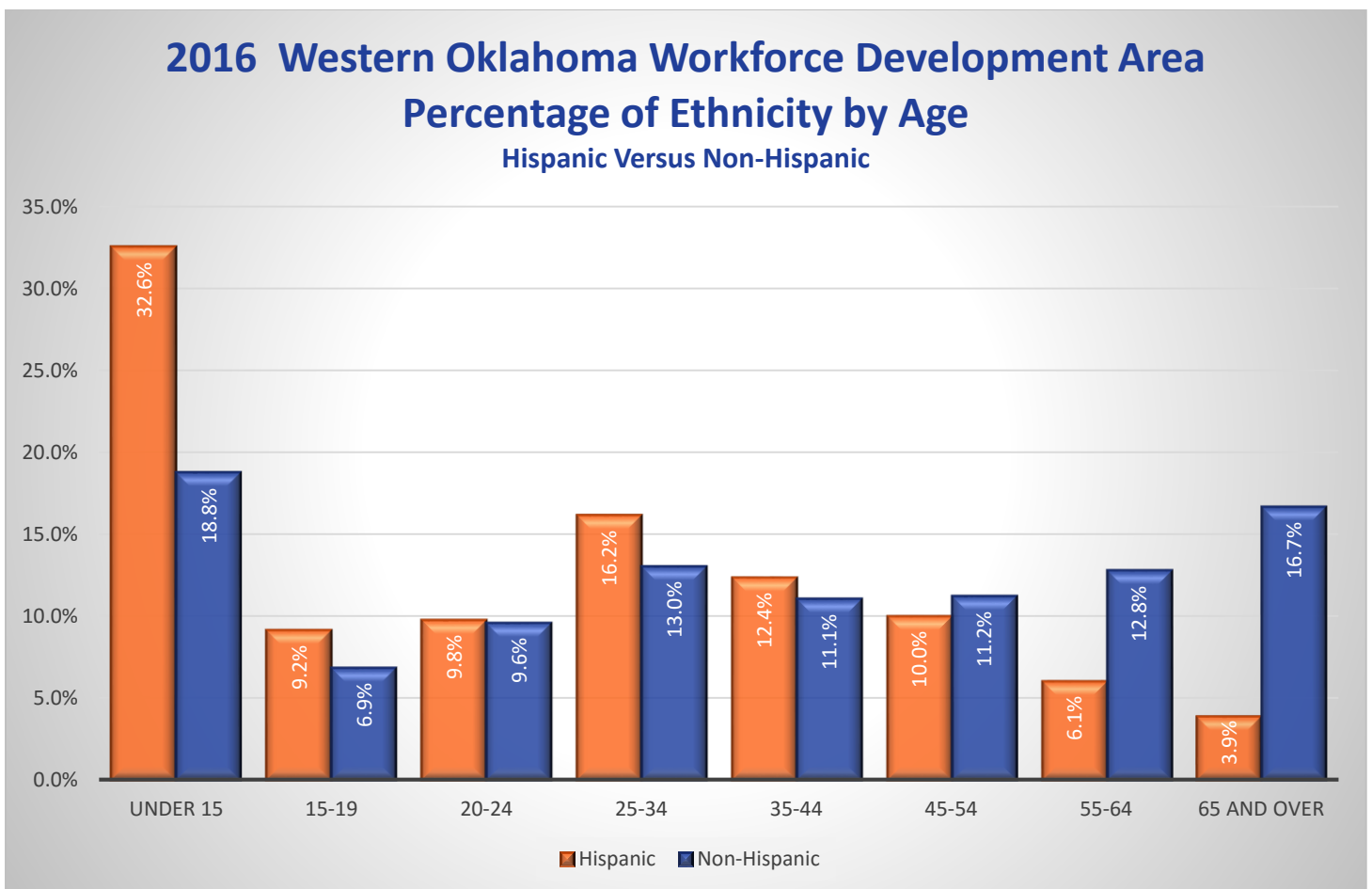
- Individuals self-identifying as “Black or African American, Non-Hispanic” are significantly under-represented in the Area at 3.15% compared to a statewide population of 7.1%.
- Individuals who self-identify as being of Hispanic ethnicity account for 13.03% of the Area population. As noted previously, Hispanic ethnicity is always reported in conjunction with a racial designator. This figure includes everyone of Hispanic ethnicity, regardless of race. Between 2010 and 2016, the Hispanic population in the Area increased by 24.98%, adding over 11,000 individuals to the population. This growth rate is slightly higher than the statewide growth rate of 22.7%.
- Though the smallest racial group in the Area, the “Native Hawaiian or Pacific Islander, Non-Hispanic” cohort experienced the greatest growth rate at 36.9% between 2010 and 2016. This equated to 483 new residents in the Area. The second-highest growth rate of 35.6% was experienced by the racial category of “Asian, Non-Hispanic,” which added 1,962 individuals to the Area population.
- In contrast to the growth data cited previously for the Hispanic cohort in the Area, the 2010-2016 growth rate for the Non-Hispanic population was a nominal 0.63%, resulting in an estimated population increase of only 2,346 individuals. These data include individuals of any race who report Non-Hispanic ethnicity. Only one racial category declined in population between 2010 and 2016. The White, Non-Hispanic population declined by 1.71%, a loss of 5,555 residents.

## Hispanic Population

Based upon the significant growth rate of the Hispanic population in the Area, this group was selected for further analysis. A chart titled “2016 Percentage of Ethnicity by Age, Hispanic versus Non-Hispanic” illustrating the Hispanic population by age group as compared to populations who identify as Non-Hispanic, follows the analysis summary.

- As noted previously, individuals who self-identify as being of Hispanic ethnicity account for 13.0% of the Area population. This is comparable to the statewide representation of 10.4%. Between 2010 and 2016, the growth rate for the Hispanic community was 24.98%. In comparison, during this same timeframe, Hispanic growth at a statewide level was 22.7% and Area growth for Non-Hispanics was only 0.63%.
- The majority of the Hispanic population is 24 years of age or younger (51.5%) while the majority of those who self-identify as being of Non-Hispanic ethnicity are over the age of 34 (51.7%). Over 16% of Non-Hispanics have surpassed the presumed retirement age of 65; only 3.9% of Hispanics have reached that milestone. An additional 12.8% of Non-Hispanics are between the ages of 55 and 64, presumed to be within 10 years of retirement. Only 6.1% of Hispanics meet these same criteria. These data hold significant implication for the ethnic diversity of the future workforce in the Area. Many of those individuals self-identifying as Non-Hispanic have already begun to “age out” and will continue to age and exit the workforce at a higher rate, to be replaced by a greater representation of younger Hispanic employees.
- Of particular importance for the Hispanic population is the concentration of youth. Over 32% of all Hispanics residing in the Area are under the age of 15; 41.7% are age 19 or less. In comparison, only 25.6% of Non-Hispanics are reported to be 19 years of age or less. Based upon age, these individuals are presumed to be either preparing to

enter, or are currently students of, the K-12 school system. This differential will significantly alter the ethnic representation of academic cohorts. An examination of educational attainment data, provided later in this report, indicates that individuals who self-identify as Hispanic generally exhibit lower levels of educational attainment than those who indicate they are Non-Hispanic. Based upon these combined data, educators must be prepared to engage, mentor, and motivate significantly increased populations of youths of Hispanic ethnicity to enhance educational outcomes, student success, and workforce preparation.



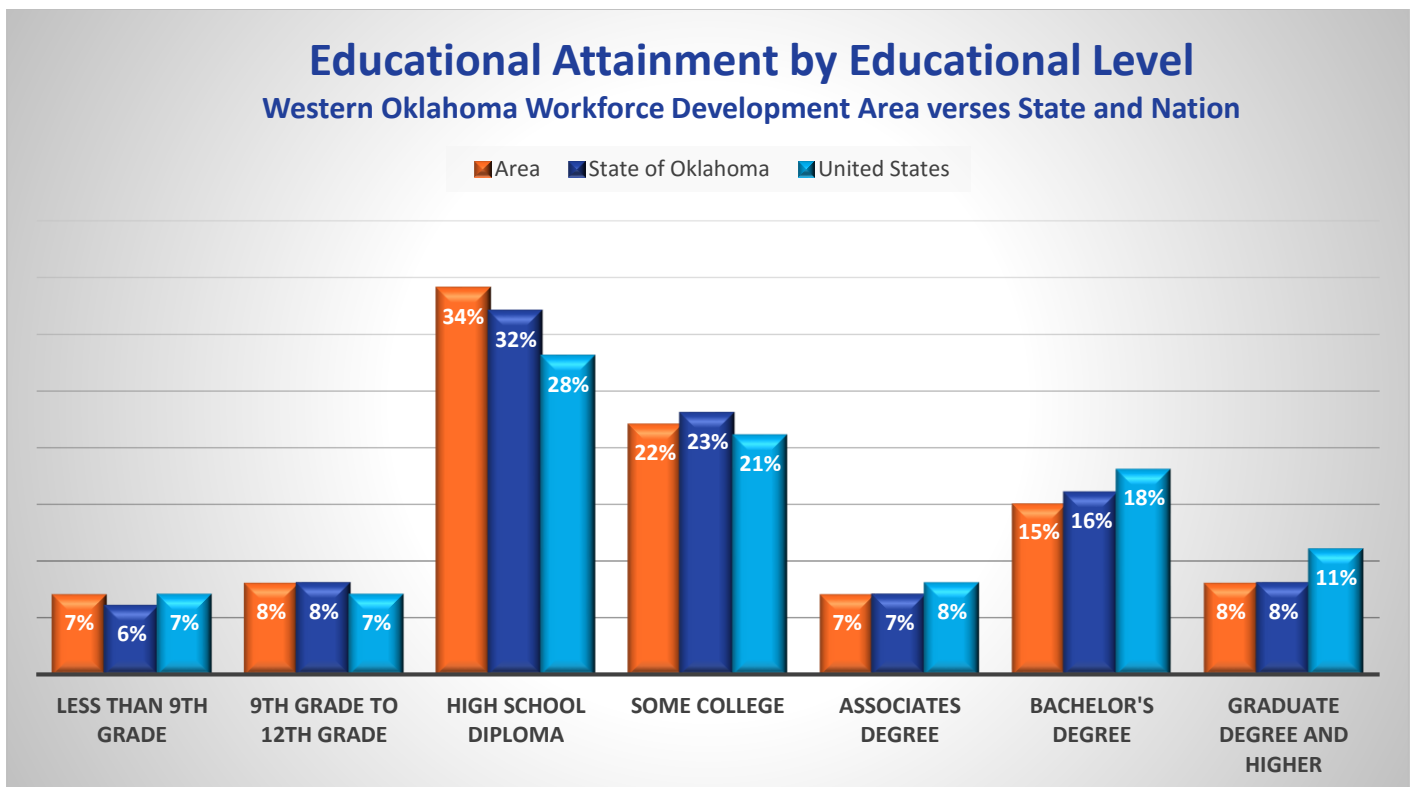
Source: EMSI 2017.2

## Educational Attainment

Data regarding educational attainment are gathered by the U.S. Census Bureau utilizing a variety of surveys. Census Bureau staff aggregate the data into seven educational attainment categories ranging from the completion of “Less than 9<sup>th</sup> Grade” up to the attainment of a “Graduate Degree or Higher.” Unfortunately, the scale currently in use fails to quantify those individuals who have achieved an educational award above the level of a high school diploma but below the attainment of an Associates Degree. This missing category is generally characterized by the completion of a career-

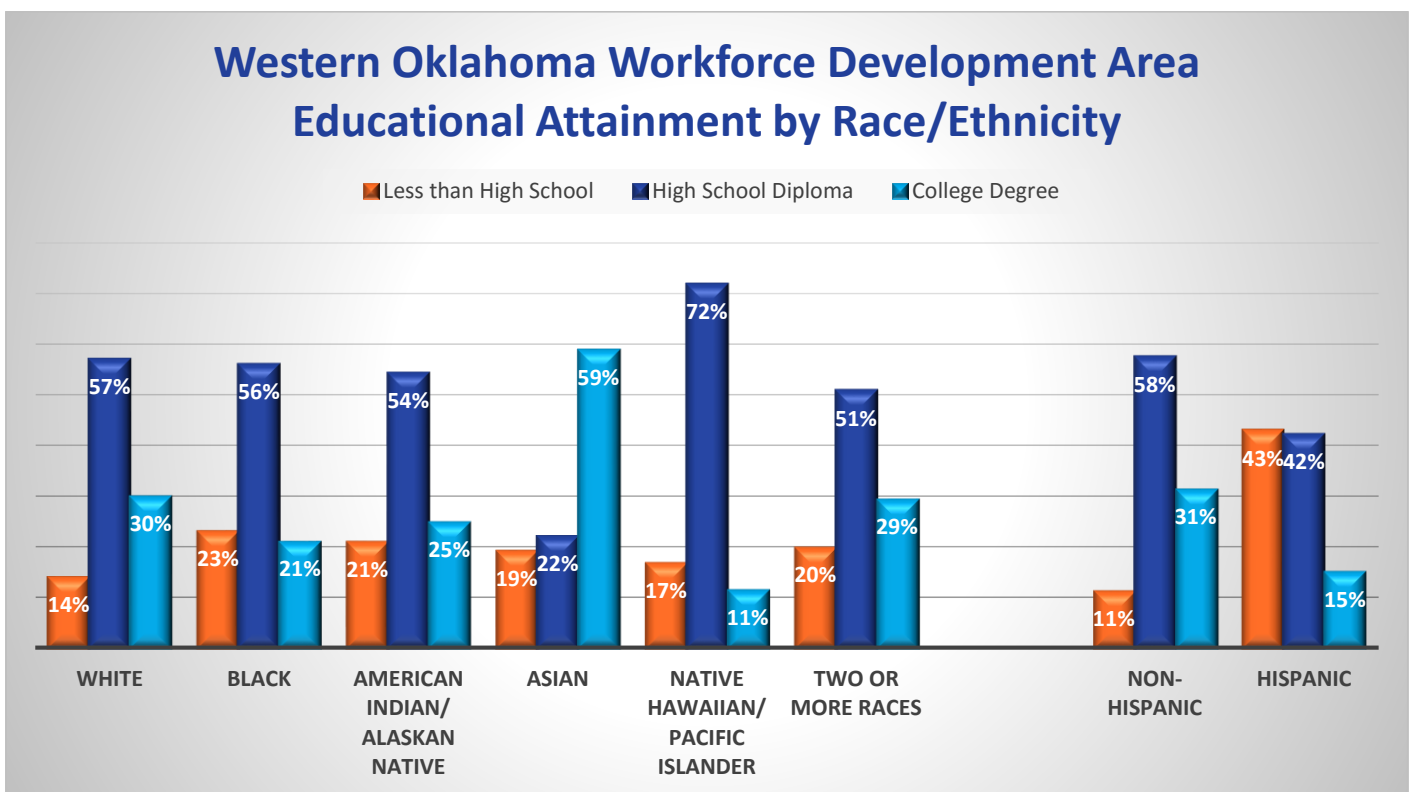
specific vocationally associated certificate or an industry-recognized credential. The educational attainment levels, categorized utilizing the Census Bureau classifications, are discussed below and followed by two charts, “Educational Attainment by Education Level” and “Educational Attainment by Race/Ethnicity.”

- Educational attainment in the Area is heavily centered in the categories of “High school diploma” and “Some college.” Approximately 33.7% of residents have earned a diploma while an additional 22.3% have attended college courses without completing a degree. This diploma completion rate is higher than the state or national averages reported at 32% and 28%, respectively.
- Nearly one in two Area residents (48.1%) have completed a high school diploma or less. At the state level, this category includes 45.9% of residents. Nationally, 42.2% of residents possess a high school diploma or less.
- Eighty-six percent of Area residents have attained a high school diploma or higher. This level of educational attainment is equivalent to both the state and national averages. With regard to postsecondary degrees – Associates Degrees and higher – the Area attainment level of 30% is slightly lower than the state achievement level at 31%, but significantly below the national average of 37%.
- Fifteen percent of Area residents have completed a Bachelor’s Degree and 8% have completed a Graduate Degree or higher. The Area’s aggregated 23% completion rate at these levels is slightly below the state completion rate of 24%, but well below the national rate of 29%.



Source: EMSI 2017.2

- The variables of race and ethnicity figure prominently in educational achievement. With regard to race, irrespective of ethnicity, 29.8% of Area residents self-identifying as “White” report attaining a college degree; for individuals who report being “Black or African American” or Native American, the percentages drop to 21.2% and 24.8%, respectively. The highest college degree completion rates are those of individuals who self-identify as Asian (58.8%), though it should be noted that this racial category is extremely small, composing less than 2% of the Area population.
- The most significant educational attainment gap is revealed by an examination of data associated with ethnicity, particularly at the lower educational levels. Nearly 43% of Area Hispanics possess an educational level less than a high school diploma as compared with 11.2% for individuals of Non-Hispanic ethnicity, a differential of over 31 percentage points. Only 42.2% of Hispanics have attained a high school diploma versus 57.5% of Non-Hispanics. An examination of data at the college completion level shows that Non-Hispanics receive a college degree at more than twice the rate of Non-Hispanics, 31.29% versus 15.03%.



Source: EMSI 2017.2

## Skills Gap

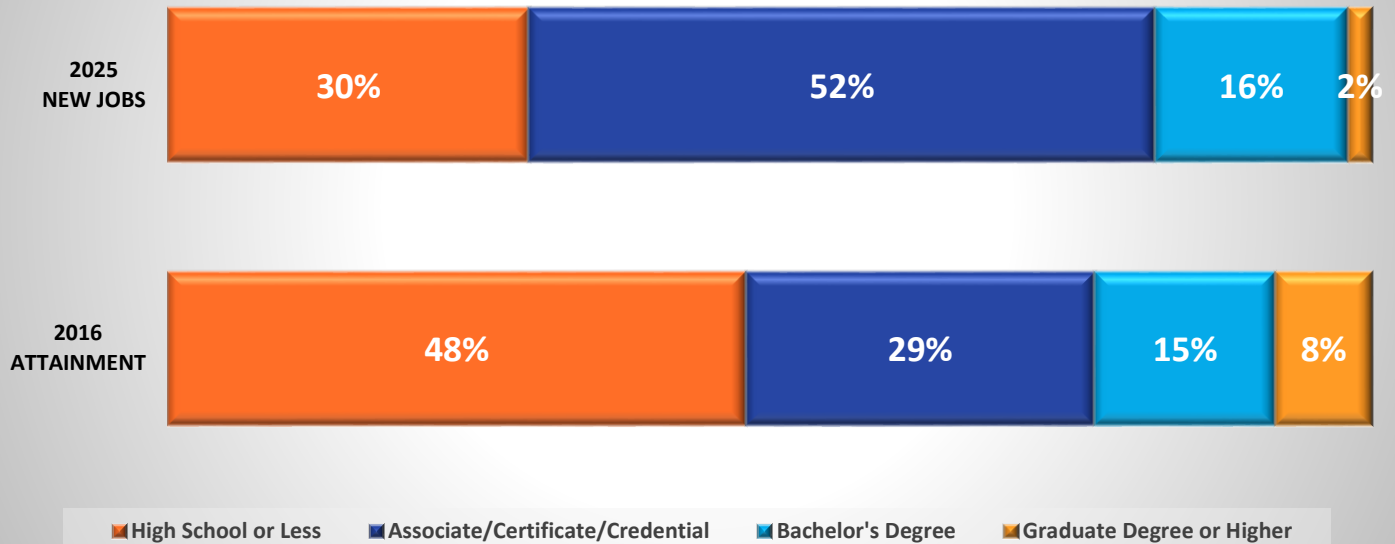
Building upon the educational attainment data presented previously, a skills gap analysis was completed. To achieve this analysis, the current level of educational achievement of Area residents was directly compared to the typical entry

level of education required for newly created jobs projected to develop between 2016 and 2025. The chart “Skills Gap for New Jobs by 2025” follows the analysis and illustrates the educational gap identified.

- By 2025, 52% of all newly created jobs in the Area will require the completion of postsecondary training (a certificate or some college) or an Associates Degree. Currently only 29% of individuals in the Area have achieved this educational level. Conversely, only 30% of newly created jobs will require a high school diploma or less while 48% of Area residents have achieved this level. In short, there is an excess supply of individuals with a high school diploma or less and a shortage of individuals to meet the needs of employers at the postsecondary and Associates Degree level – a 23 percentage point skills gap. Based upon projected population growth rates for 2025, an estimated minimum of 62,000 additional Area residents with a high school diploma or less must obtain some level of postsecondary credential to meet employer needs. This estimate is compounded when factoring in the anticipated need for individuals with even higher educational levels discussed below.
- Two percent of new jobs created by 2025 will require a graduate degree or higher. With 8% of individuals in the Area currently possessing this level of education, residents should be well positioned to fulfill the needs of employers for these new jobs.
- Sixteen percent of new jobs created by 2025 will require the attainment of a Bachelor’s Degree. Currently, 15% of the population of the Area possess this level of education. While it appears these data illustrate a minor skills gap of only one percentage point, this surface analysis may significantly underestimate the continued need for the attainment of a Bachelor’s Degree. Three key factors directly impact the analysis:
  - Variability. The projected need for positions in the future is by definition an estimate which will change as workforce demand evolves. Any margin of error in the prediction model would most probably necessitate a greater need for Bachelor’s Degrees than the current calculated one percent deficit.
  - Misalignment. The second factor important to any analysis of the need for this level of educational attainment is the possibility of a misalignment between degree specialties and employer need. The existence of a sufficient number of individuals possessing a Bachelor’s Degree fails to meet the needs of employers if those degrees do not provide the appropriate training necessary to fulfill job requirements.
  - Surplus of higher degrees. Finally, it must be considered that the surplus of individuals who already possess a Graduate Degree or higher – 8% of Area residents – may place downward pressure on the increased need for Bachelor’s Degrees in the Area as more highly trained job seekers accept positions below their educational attainment. This consideration is mitigated, however, by the physical location of numerous counties in the Area relative to adjacent states. It may be assumed that many of these individuals could be drawn outside the Area or state for employment better suited to their educational achievement rather than choosing to fill positions at a lower educational level. This hypothesis is reinforced by the job market and salary data illustrated in the commuter pattern section presented later in this report.

**Considering all of these factors, overall, it must be considered that the need for individuals who have attained a Bachelor’s Degree by 2025 should be greater than the current one percent estimated increase.**

## Area Skills Gap for New Jobs by 2025



Source: EMSI, 2017.2

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## Educational Assets

Colleges, Universities, Career Technology Centers and K-12 schools are instrumental in developing the future workforce. The Area is home to several institutions which help supply local businesses and organizations with a workforce that has the necessary labor and skills to be competitive in today's economy.

### CareerTechs.

There are nine CareerTechs with 16 locations in the Area:

- **Autry Technology Center** (Three Enid campuses: Willow Run, Woodring, Willow)
- **Central Technology Center** (Drumright)
- **Chisholm Trail Technology Center** (Omega)
- **High Plains Technology Center** (Woodward)
- **Meridian Technology Center** (Stillwater)
- **Northwest Technology Center** (Alva, Fairview)
- **Pioneer Technology Center** (Ponca City)
- **Southwest Technology Center** (Altus)
- **Western Technology Center** (Burns Flat, Elk City, Hobart, Sayre, Weatherford)

*Source: CareerTech.org*

### Colleges and Universities.

There are eight colleges and universities in the Area with 13 campus locations:

- **Northern Oklahoma College** (Tonkawa, Enid, Stillwater)
- **Northwestern Oklahoma State University** (Alva, Enid, Woodward)
- **Oklahoma Panhandle State University** (Goodwell)
- **Oklahoma State University** (Stillwater)
- **Southwestern Oklahoma State University** (Weatherford, Sayre)
- **University Center at Ponca City** (Ponca City)
- **Wayland Baptist University** (Altus)
- **Western Oklahoma State College** (Altus)

*Source: Oklahoma State Regents of Higher Education*

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## K-12 School Districts.

There are 107 K-12 school districts in the Western Oklahoma Workforce Development Area:

### Alfalfa County:

- Burlington (Burlington)
- Cherokee (Cherokee)
- Timberlake (Helena)

### Beaver County:

- Beaver (Beaver)
- Balko (Balko)
- Forgan (Forgan)
- Turpin (Turpin)

### Beckham County:

- Merritt (Elk City)
- Elk City (Elk City)
- Sayre (Sayre)
- Erick (Erick)

### Blaine County:

- Okeene (Okeene)
- Watonga (Watonga)
- Geary (Geary)
- Canton (Canton)

### Cimarron County:

- Boise City (Boise City)
- Felt (Felt)
- Keyes (Keyes)

### Custer County:

- Arapaho-Butler (Arapaho)
- Thomas-Fay-Custer Unified District (Thomas)
- Weatherford (Weatherford)
- Clinton (Clinton)

### Dewey County:

- Vici (Vici)
- Seiling (Seiling)
- Taloga (Taloga)

### Ellis County:

- Fargo (Fargo)
- Arnett (Arnett)
- Shattuck (Shattuck)

### Garfield County:

- Waukomis (Waukomis)
- Kremlin-Hillsdale (Kremlin)
- Chisholm (Enid)
- Garber (Garber)
- Pioneer-Pleasant Vale (Waukomis)
- Enid (Enid)
- Drummond (Drummond)
- Covington-Douglas (Covington)

### Grant County:

- Medford (Medford)
- Pond Creek-Hunter (Pond Creek)
- Deer Creek-Lamont (Lamont)

**Greer County:**

- Mangum (Mangum)
- Granite (Granite)

**Harmon County:**

- Hollis (Hollis)

**Harper County:**

- Laverne (Laverne)
- Buffalo (Buffalo)

**Jackson County:**

- Navajo (Altus)
- Duke (Duke)
- Altus (Altus)
- Eldorado (Eldorado)
- Olustee (Olustee)
- Blair (Blair)

**Kay County:**

- Peckham (Newkirk)
- Kildare (Ponca City)
- Blackwell (Blackwell)
- Ponca City (Ponca City)
- Tonkawa (Tonkawa)
- Newkirk (Newkirk)

**Kingfisher County:**

- Dover (Dover)
- Lomega (Omega)
- Kingfisher (Kingfisher)
- Hennessey (Hennessey)
- Cashion (Cashion)
- Okarche (Okarche)

**Kiowa County:**

- Hobart (Hobart)
- Lone Wolf (Lone Wolf)
- Mountain View-Gotebo (Mountain View)
- Snyder (Mt. Park)

**Major County:**

- Ringwood (Ringwood)
- Aline-Cleo (Aline)
- Fairview (Fairview)
- Cimarron (Lahoma)

**Noble County:**

- Perry (Perry)
- Billings (Billings)
- Frontier (Red Rock)
- Morrison (Morrison)

**Payne County:**

- Oak Grove (Cushing)
- Ripley (Ripley)
- Stillwater (Stillwater)
- Perkins-Tryon (Perkins)
- Cushing (Cushing)
- Glencoe (Glencoe)
- Yale (Yale)
- Five-Star ILC (Cushing)

**Roger Mills County:**

- Leedey (Leedey)
- Reydon (Reydon)
- Cheyenne (Cheyenne)
- Sweetwater (Sweetwater)
- Hammon (Hammon)

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**Texas County:**

- **Optima (Optima)**
- **Straight (Guymon)**
- **Yarbrough (Goodwell)**
- **Guymon (Guymon)**
- **Hardesty (Hardesty)**
- **Hooker (Hooker)**
- **Tyrone (Tyrone)**
- **Goodwell (Goodwell)**
- **Texhoma (Texhoma)**

**Washita County:**

- **Sentinel (Sentinel)**
- **Burns Flat-Dill City (Burns Flat)**
- **Canute (Canute)**
- **Cordell (Cordell)**

**Woods County:**

- **Alva (Alva)**
- **Waynoka (Waynoka)**
- **Freedom (Freedom)**

**Woodward County:**

- **Woodward (Woodward)**
- **Mooreland (Mooreland)**
- **Sharon-Mutual (Mutual)**
- **Fort Supply (Fort Supply)**

*Source: Oklahoma State Department of Education*

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## Commuter Data

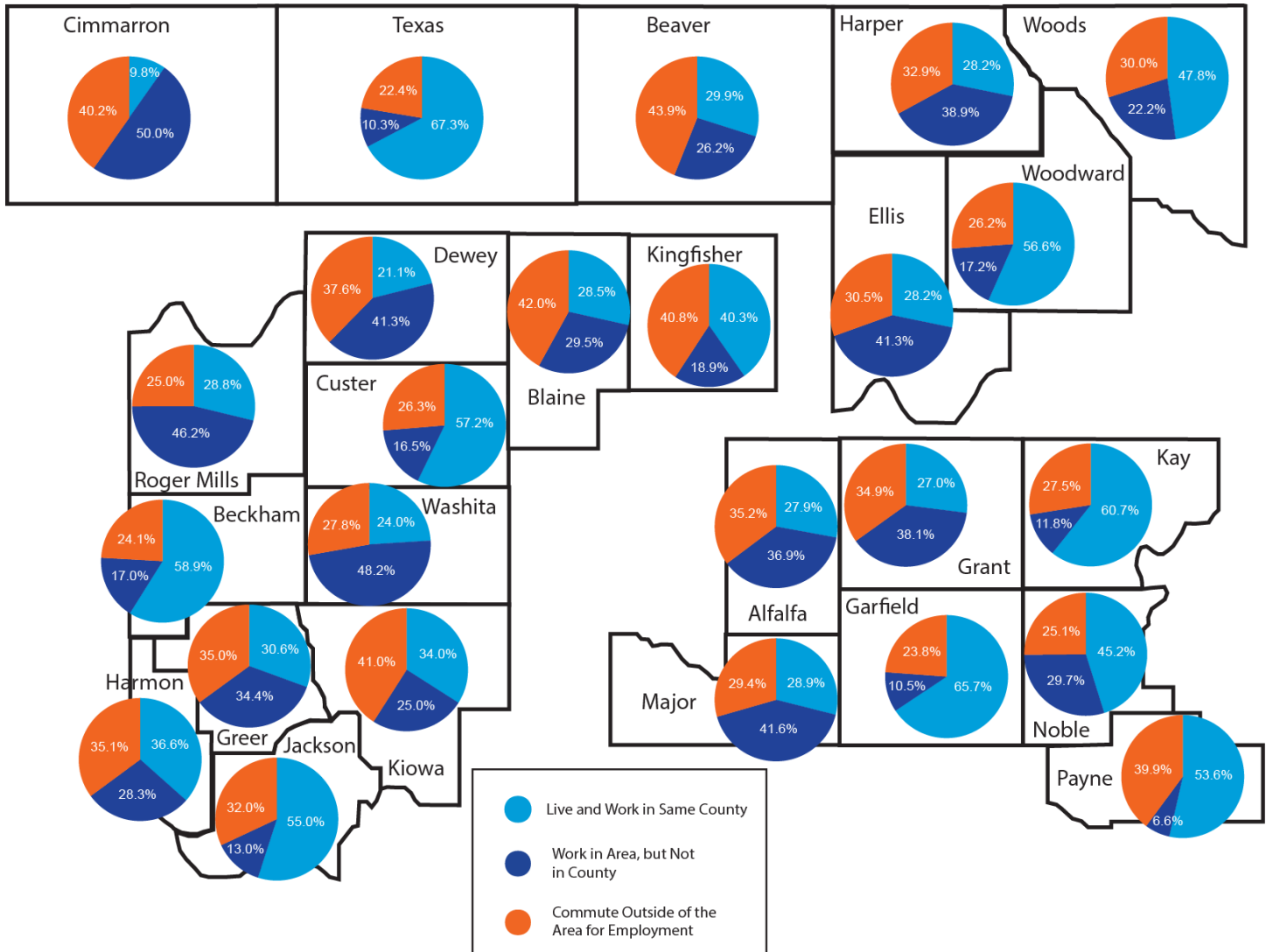
The U.S. Census Bureau Longitudinal Employer-Household Dynamics (LEHD) program uses data from a variety of sources including the unemployment insurance program, Quarterly Census of Employment and Wages (QCEW), and administrative data from censuses and surveys to create models estimating worker commutes for employment. The findings based upon these models are provided below. A graphic illustrating commuter patterns for each county follows the analysis. For the purposes of this analysis, “Area” refers to the Local Workforce Development Area.

- Just over 69% of Area residents remain in the Area for employment while 31% commute outside the Area. Most of those individuals who commute outside the Area travel to Oklahoma City for employment. The estimated percentage of commuters to Oklahoma City varies from approximately 1.2% from Texas County to 17.5% from Kingfisher County. Tulsa and Lawton are also frequent destinations for Area residents commuting for employment. Individuals living in border counties may also commute across state lines for employment
- Eight of the 25 Area counties retain over 50% of working residents: Beckham (58.9%), Custer (57.2%), Garfield (65.7%), Jackson (55.0%), Kay (60.7%), Payne (53.6%), Texas (67.3%), and Woodward (56.6%). In each of these eight counties, an additional 7%-17% leave the county, but remain in the Area, for employment. Predictably, all eight of these counties are home to the largest cities in the Area: Enid in Garfield County, Stillwater in Payne County, Ponca City in Kay County, Altus in Jackson County, Elk City in Beckham County, Guymon in Texas County, Woodward in Woodward County, and Weatherford in Custer County. In 2016 these eight counties reported the highest job densities in the Area – ranging from 36,706 jobs available in Payne County to 9,115 jobs in Woodward County – significantly reducing the need for inter-county or inter-state travel for employment. Examples of major employers in these counties include:
  - Texas County: Over half of those employed in Texas County work in the county seat of Guymon. Significant employers in Texas County include Seaboard, Hitch, and Oklahoma Panhandle State University, as well as local healthcare and education providers.
  - Most Garfield County residents are employed in Enid, the home of Vance Air Force Base. Examples of large employers in Garfield County include multiple medical/nursing facilities (Integris, St Mary’s Hospital and the Methodist Home of Enid), Marsau Enterprises, Koch Fertilizer, and Walmart.
  - Kay County: Ponca City is the largest source of jobs in the county with large employers such as Phillips 66, Dorada Foods, and Schlumberger. Though smaller, the cities of Tonkawa and Newkirk also offer many opportunities for employment to county residents, including Northern Oklahoma College in Tonkawa and two gaming casinos in Newkirk.
  - In Woodward County, over 44% work in the city of Woodward. Large employers in Woodward include Alliance Health, Walmart, and Patterson UTI. Additional employment opportunities within the county are centered in Fort Supply at the state correctional facility and the Northwest Center medical facility.
  - Payne County retains 53.55% of its residents for employment, predominantly in the county seat of Stillwater. Major employers offering opportunities to county residents include Oklahoma State University, Stillwater Medical Center, the Environmental Quality Department (state government), and

Walmart. Additional significant employment opportunities are available in the city of Cushing, including Walmart, Cimarron Correctional Facility, Hillcrest Hospital, and Ambers Pipeline.

- Employment in Beckham county is predominantly centered in Elk City. Though there are limited large employers in the county, there are many medium sized employers in a wide variety of economic sectors providing opportunities for 50-250 employees each. Major employers include Great Plains Regional Medical Center, Walmart, Bar-S Foods, and Hutchinson Oil Company, Inc. Additional employment opportunities are available in Sayre at institutions such as Southwestern Oklahoma State University and North Fork Correctional Facility.
- Custer County offers employment opportunities in a number of cities and towns, including Weatherford, Clinton, and, to a lesser degree, Thomas, Oklahoma. Over 23% percent of county residents work in Weatherford while 22.5% work in Clinton. Major employers in Weatherford include Dolese Brothers, Walmart, and Weatherford Regional Hospital. Clinton offers employment opportunities at Bar-S Foods, the Oklahoma State Highway Department, U.S. Indian Health Services, and Lucky Star Casino.
- Employment in Jackson County is centered in the city of Altus, population 19,000. The largest employer is the federal government, employing both military and civilian residents at Altus Air Force Base. Additional large employers include Jackson County Memorial Hospital, Bar-S Foods, and Walmart.
- The remaining 17 counties in the Area retain between 9% and 48% of the working population. Cimarron County is notable for retaining the lowest percentage of workers at 9.8%. Employment opportunities are limited. In 2016, Cimarron County reported the second lowest number of existing jobs in the Area at 785 and no large businesses employing over 250 individuals. At the same time, Cimarron County's population stood at 2,164 with a labor force of over 1,400. As a result, 50% of Cimarron County workers travel outside the county, but still maintain employment within the Area. Those who leave the Area predominantly commute north across the state line to Liberal or Elkhart, Kansas or south to Amarillo or Borger City, Texas.
- Beaver County experiences the highest rate of workers leaving the Area for employment at 43.94%. Like Cimarron County noted previously, Beaver is located in the Oklahoma panhandle, sharing borders with both Kansas and Texas. Over 11% of Beaver County residents commute across the state line to work in the Liberal (Seward County) Kansas area. An examination of job density and wage data reveals that Beaver County reported the ninth lowest number of existing jobs in the Area in 2016 at 1,667 with average wages of \$46,591 annually. Seward County, while unable to provide comparable wage averages, eclipsed Beaver County's job density ten-fold with over 11,400 jobs available. Additional Beaver County residents report working out-of-state at Perryton or Amarillo, Texas, or Wichita, Kansas. Higher wages are offered by the Perryton area (+23%), Amarillo metropolitan area (+12.6%) and Wichita, Kansas (+17.4%) as well as increased employment opportunities.
- It must be noted that "commuting" can no longer be strictly defined as physical relocation for employment. Data indicate that Area residents who commute outside the Area to work do so not only to adjacent counties and states but across the nation. This data emphasizes the growing trend of telework.

## Commuter Patterns by County



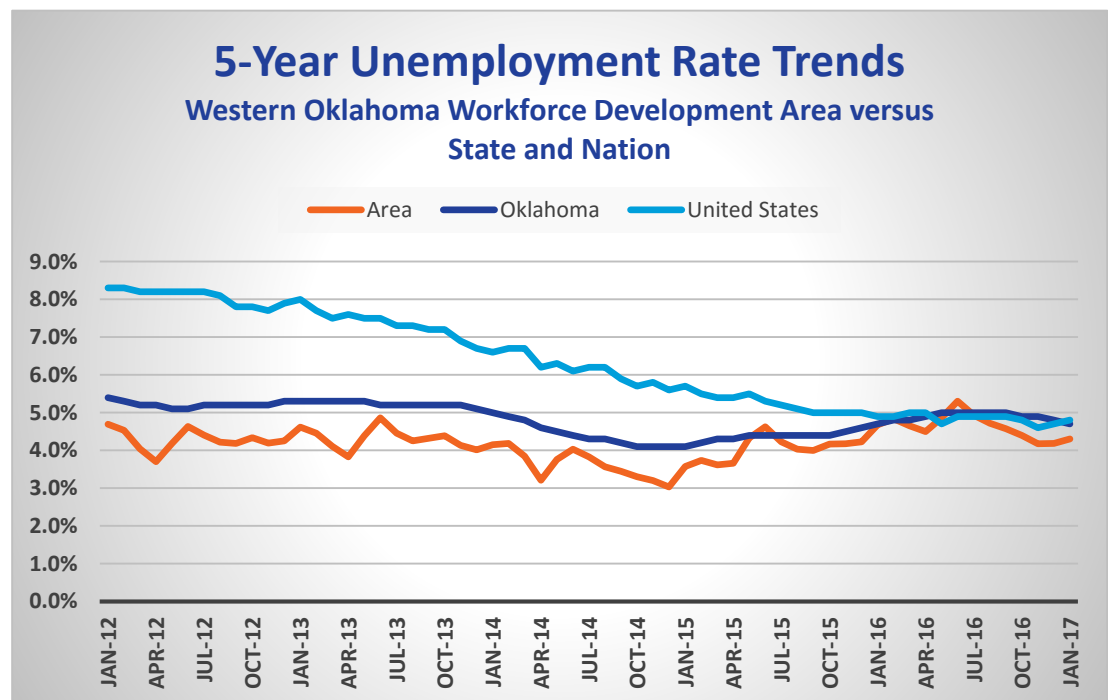
Source: U.S. Census Bureau Longitudinal Employer-Household Dynamics (LEHD)

## Unemployment Rate

The term “unemployment” refers to individuals who are counted as participating in the labor force, but are not employed. This eliminates consideration of people who do not participate in the labor force such as individuals who are unable to work due to a disability, retirees, and individuals who may consciously *choose* not to work such as students. As a result, the unemployment rate cited focuses on people seeking, but not attaining, employment.

For this analysis, the average unemployment rates of individuals living in the Area were compared to the average unemployment rates of the state of Oklahoma as a whole, and the nation, over a span of 5 years from January 2012 to January 2017.

- Between January 2012 and January 2017, the unemployment rate in the Area generally trended below both the state and national rates. In June 2015, it briefly surpassed the state rate for the first time. Likewise, it surpassed the national rate in June 2016. In August 2016, the Area unemployment rate dropped below both the state and national rates and has remained there.



Source: Bureau of Labor Statistics, Local Area Unemployment Statistics (BLS LAUS)

- During this time frame, the state and national rates varied only minutely, by no more than 0.5% in the short term, maintaining a relatively smooth trend line. Conversely, the unemployment rates for the Area experienced significant variation in short periods of time, resulting in sharp peaks and valleys in the trend line. For example, between February and April 2014, the rate dropped from 4.2% to 3.2% -- a one percentage point variance across two months – then swiftly rose back to 4.0% by June. Another example of this volatility can be observed between January and August of 2013. The unemployment rate of the Area was initially 4.6% in January. The rate dropped sharply to 3.8% in April 2013, rose to 4.9% in June 2013, and then dropped again in August 2013 to 4.3%.
- During the five-year span examined, the unemployment rate for the Area peaked at 5.3% in June 2016 and reached its lowest level of 3.0% in December 2014. Since reaching the peak in June 2016, the unemployment rate has

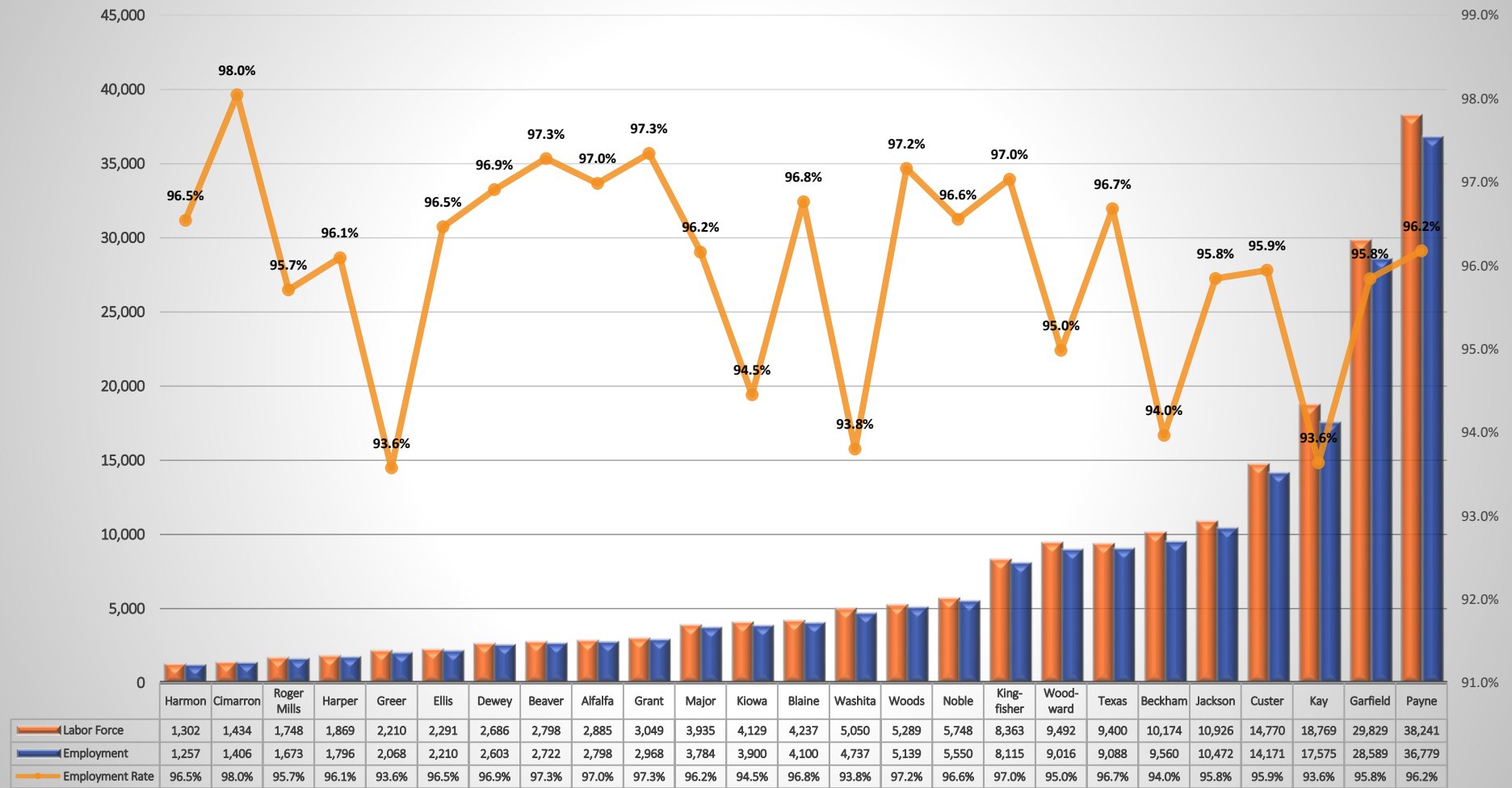
generally declined. In January, the Area unemployment rate was reported at 4.26%. Preliminary data for February 2017 through April 2017 indicate the Area unemployment rate continues to trend downward, reaching a low of 3.5% in April, although it must be noted that this is preliminary data and as such, is subject to change.

## Total Employment by County

In contrast to the unemployment rates discussed previously, this report section focuses on the number and percentage of individuals in the Area who were *employed*. Employment data are cited for January 2017. A table titled “Total Employment and Employment Rates for the Area by County, January 2017” follows the analysis.

- In January, 2016,624 Area residents were in the workforce with 192,076 employed. This results in an employment rate of 95.74%.
- Despite possessing the greatest overall population, largest labor force, and most individuals employed in the Area, Payne County exhibits only a mediocre employment rate of 96.18%, 13<sup>th</sup> out of 25.
- As noted previously, of all of the counties in the Area, Cimarron County possesses the lowest total population, the lowest population density, and reports the second fewest jobs in existence in 2016. An examination of employment data also reveals that Cimarron County reports the second smallest labor force at 1,434 individuals. Despite these data, Cimarron County exhibits the highest rate of employment in the Area for January 2017 at 98.05%. This instance is not unique. Records indicate this county consistently maintains a high employment rate. Over the five-year period between January 2012 and December 2016, Cimarron County reported an average employment rate of 97.19%, again, the highest rate in the Area. A comparison of the 2016 county population with the January 2017 labor force indicates that more than two out of three residents are in the workforce, a higher percentage of workforce participation than any other county in the Area.
- Greer County reported the lowest employment rate in January 2017 at 93.57%. Kay County scored 93.64%, the second lowest by a margin of only seven one-hundredths of one percent. With regards to labor force size, Greer ranks twenty-first while Kay ranks third out of the 25 Area counties. The employment rates for both of these counties are traditionally low. An examination of 5-year employment averages, from January 2012 to December 2016, reveals that Kay County and Greer County rank last and next to last of all Area Counties with average employment of 93.63% and 94.28%, respectively.

## Total Employment and Employment Rates for the Area by County, January 2017



Source: Bureau of Labor Statistics Local Area Unemployment Statistics

## NAICS Employment Sectors

Several of the analyses that follow are based upon data examined by NAICS employment sector code. The following information is provided to enhance understanding of the framework of these analyses.

The North American Industry Classification System (NAICS) is the standard utilized by federal agencies to classify businesses to collect, analyze, and publish, statistical data related to the United States business economy. NAICS uses a 6-digit coding system which is structured hierarchically, beginning with 20 broad economic sectors. Over 1,000 industries are then sub-categorized within these 20 sectors. Each industry within a sector shares distinguishing economic activities. ([www.census.gov/eos/www/naics](http://www.census.gov/eos/www/naics)) A list of the 20 NAICS sectors and the types of industries included can be found in Appendix A at the end of this document.

## Top Employment Sectors

The following list highlights the top 10 industry sectors in the Area in number of jobs available. Overall, these top employing sectors account for 148,053 jobs; 84% of all jobs reported in the Area. *Government* is the top-ranked sector, offering over 47,900 jobs for Area residents at 1,325 payrolled business locations. The *Retail Trade* sector ranks second, providing 20,134 jobs at 1,697 business locations. It is interesting to note the extreme disparity between these top two sectors – the top-ranked *Government* sector offers nearly 2.4 times as many jobs as the second-ranked *Retail Trade* sector. The 10<sup>th</sup> ranked sector in the Area, *Wholesale Trade*, reports 5,951 jobs, only 12.4% as many as the top-ranking sector of *Government*.

NAICS Sector Group	Sector	2016 Jobs
90	Government	47,929
44	Retail Trade	20,134
62	Health Care and Social Assistance	15,408
72	Accommodation and Food Services	14,696
31	Manufacturing	11,917
21	Mining, Quarrying, and Oil and Gas Extraction	9,748
23	Construction	9,210
11	Crop and Animal Production	6,686
81	Other Services (except Public Administration)	6,374
42	Wholesale Trade	5,951

Source: EMSI 2017.2

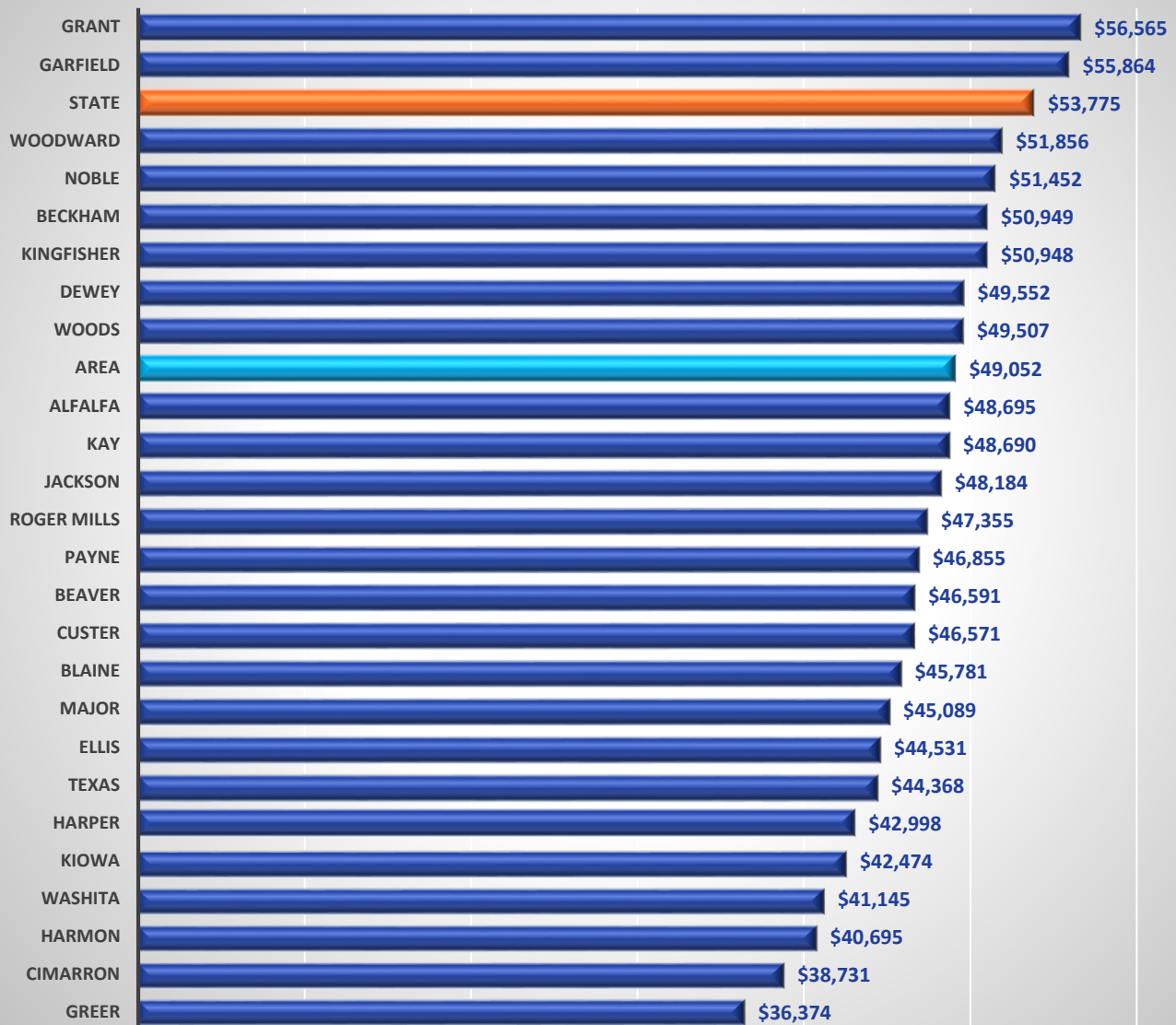
## Average Earnings by County

The chart titled “2016 Average Earnings by County, State, and Area” located immediately following this analysis, illustrates average annual earnings for the 25 Area counties as well as the Area average and Oklahoma statewide

average. Average annual earnings are computed per job, regardless of the occupation or sector of employment. A comparison of these data revealed the following:

- Average annual earnings for the Area are reported at \$49,052. Average annual earnings for the state are reported at \$53,775, an increase of 9.6% over average Area wages.
- Two Area counties experience average earnings above the state average, Grant County and Garfield County. At \$56,565 per year, Grant County earnings are 5% greater than the state average, an increase of \$2,790 per year. Garfield County reports a slightly lower differential between county and state average earnings than Grant County. At \$55,864 annually, Grant County residents experience an increase of 3.9%, or \$2,089 per year, over the average wage in Oklahoma.
- The majority of counties in the Area, 17 of the 25, report average annual earnings below the Area average of \$49,052; only eight counties report earnings higher than average. Often, this upward skew in the Area average wage reflects the impact of a very large metropolitan area in a single county possessing significantly higher job density and wages. This is the case, for example, in the central region of Oklahoma where the prevailing wages and job density of the Oklahoma City metropolitan area overshadow those in surrounding rural counties. Removal of the over-weighted county from the calculations will often result in a more balanced average, revealing the extent of the impact of that single locale. In this instance, however, analysis shows that no single county or metropolitan area is entirely responsible for driving the Area average wage upward. Grant County, despite high average wages, only accounts for 1,615 jobs in 2016. The largest impact results from a combination of high wages and high job density reported by Garfield County.

## 2016 Average Earnings by County, State, and Area



Source: EMSI 2017.2

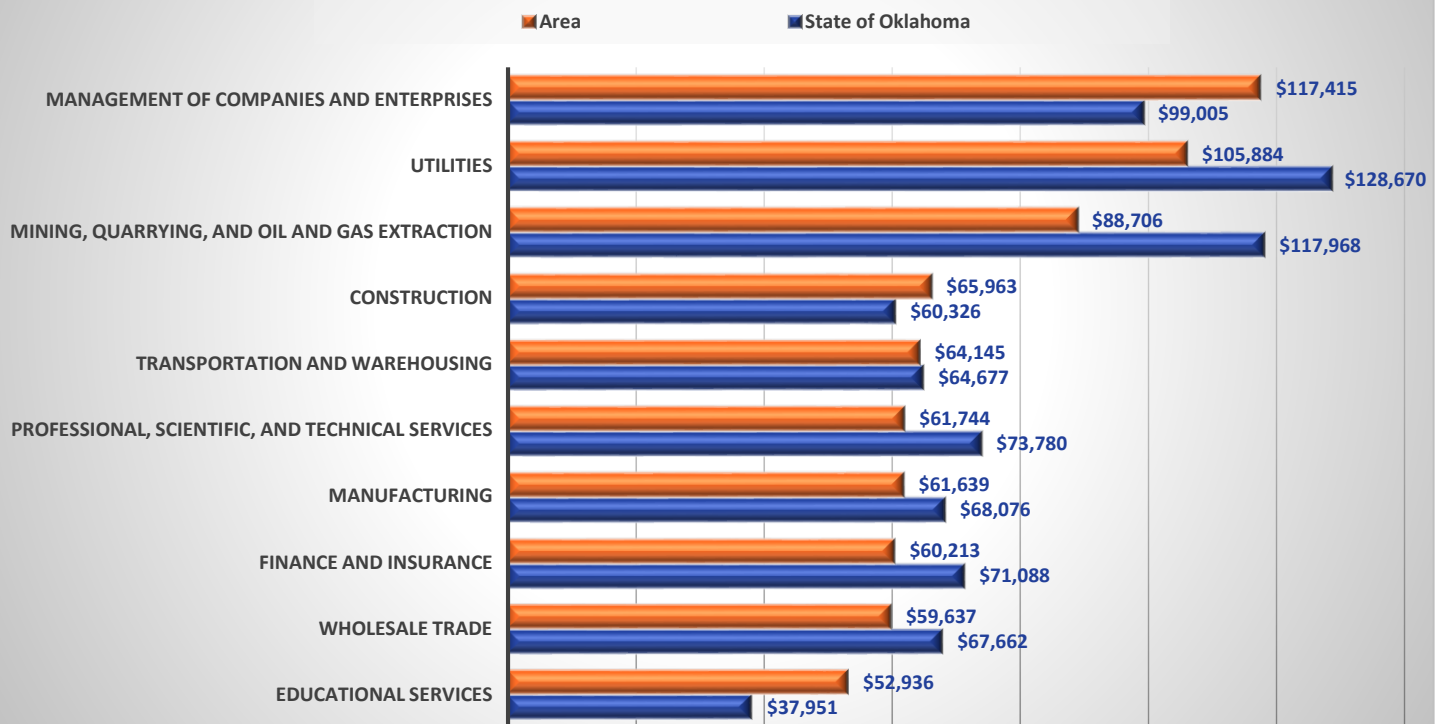
## Average Earnings by Sector

Annual employee earnings, averaged by sector, are examined in this section of the report. A chart, titled “Average Earnings by Sector, Top 10 Earning Sectors in the Area versus State of Oklahoma,” follows the analysis.

- The earnings in three Area sectors exceed the statewide earnings for the same sector. These include *Management of Companies and Enterprises*; *Construction*; and *Educational Services*. The greatest differential occurs in the *Educational Services* sector where average annual earnings for the Area exceed the statewide earnings by 39.48%. Further examination of these data reveal that this differential is an anomaly, unique to this Area, as educational services salaries are driven up by a small number of extremely high Flight Instruction occupational salaries in Jackson County. It is most likely these highly salaried employees are associated with flight instruction at Altus Air Force Base. The second greatest differential is found in the *Management of Companies and Enterprises* where Area annual earnings surpass statewide annual earnings by 18.60%.
- The *Management of Companies and Enterprises* sector, discussed previously, reports the highest average earnings for the Area at \$117,415. The 10<sup>th</sup> ranked sector, *Educational Services*, experiences average earnings of \$52,936. A direct comparison between these two sectors reveals a 121% differential. Both of these sectors provided limited employment opportunities. The *Management of Companies and Enterprises* sector accounted for 1,432 jobs in the Area in 2016, while the *Educational Services* sector reported 784.
- Four of the top 10 Employment Sectors based upon overall numbers of jobs available, provided previously, fail to rank in the top 10 Earnings by Sector for the Area. The sector of *Government*, providing over 47,000 jobs, the most jobs associated with any sector, ranks 12<sup>th</sup> in earnings at \$51,868 annually. *Accommodation and Food Services*, the fourth ranked sector in employment, providing nearly 15,000 jobs, ranks last among 20 sectors, with average earnings of \$18,509. *Retail Trade*, employing over 20,000, and *Health Care and Social Assistance*, providing 15,400 jobs, rank 17<sup>th</sup> and 14<sup>th</sup> respectively on the list of average earnings by sector.
- The highest average earnings are found in industries included in the *Finance and Insurance* sector. *Securities Brokerage* reports the highest earnings in the Area at \$166,195, followed by *Direct Life Insurance Carriers* at \$164,052. Employment in these industries is limited. Combined, they provided only 141 Area jobs in 2016. The third-ranked industry, *Petroleum Refineries*, an industry included in the *Utilities* sector, reported average annual earnings of \$152,616 annually, but only 21 jobs. As previously discussed, numerous *Flight Training* positions are available in Jackson County, making it the 10<sup>th</sup> highest-paid industry in the Area with average wages at \$125,626.

## Average Earnings by Sector

### Top 10 Earning Sectors in the Area versus State of Oklahoma



Source: EMSI, 2017.2

## Top Occupations by Number of Jobs

This analysis examines the prevalence of job classifications in the Area. Non-civilian military occupations are excluded from the list. A table summarizing the top 10 occupations by number of jobs follows the analysis.

- The top 10 occupations represent 40,158 jobs; 22.9% of the total jobs reported in the Area.
- The most prevalent job in the Area is *Cashier*. In 2016, 5,658 *Cashier* jobs existed with a median hourly wage of \$8.89. *Retail Salespersons* is the second ranked occupation with 4,650 reported jobs and median hourly earnings of \$9.59.
- With regard to educational requirements, seven of the top 10 occupations require the completion of a high school diploma or less, generally in conjunction with some level of on-the-job training. The occupation of *General and Operations Manager* requires the completion of a Bachelor's degree while the occupation of *Heavy and Tractor-Trailer Truck Drivers* requires a Postsecondary nondegree award. *Postsecondary Teacher* requires the completion of a Doctoral or professional degree, but it should be noted that the demand for this occupation is weakening, projected to decline by an overall 12.4% by 2025.

- The second-ranked job category in the Area, *Retail Salespersons*, exhibits the greatest potential for creating new jobs by 2025, increasing by 701 positions – a growth rate of 15.1%. The occupation of *Heavy and Tractor-Trailer Truck Drivers*, while experiencing a lower level of job creation with an anticipated increase of 679 new jobs, exhibits the highest growth rate at 15.7%.
- It is interesting to note that the occupation of *Construction Laborers*, ranked 21<sup>st</sup> in number of jobs in 2016 with 1,872 and hence not included in the Top 10 list presented here, is projected to experience a significant growth rate of 25.6%, adding 479 new jobs for Area residents. This growth rate is higher than any occupation listed in the Top 10 while the new job creation data exceeds that of 6 of the Top 10 occupations summarized here.

Occupation	2016 Jobs	2025 Jobs	Change	Median Hourly Earnings	Education or Experience Level
Cashier	5,658	5,923	265	\$8.89	Short-term on-the-job training
Retail Salespersons	4,650	5,351	701	\$9.59	Short-term on-the-job training
Combined Food Preparation and Serving Workers, Including Fast Food	4,349	4,883	534	\$8.81	Short-term on-the-job training
Heavy and Tractor-Trailer Truck Drivers	4,322	5,001	679	\$20.45	Postsecondary nondegree award
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	4,140	4,192	52	\$13.50	Short-term on-the-job training
Office Clerks, General	4,069	4,139	70	\$11.64	Short-term on-the-job training
Postsecondary Teachers	3,476	3,045	-431	\$28.37	Doctoral or professional degree
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	3,327	3,792	465	\$15.54	Short-term on-the-job training
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	3,232	3,640	408	\$9.46	Short-term on-the-job training
General and Operations Managers	2,935	3,290	355	\$34.96	Bachelor's degree

Source: EMSI, 2017.2

## Top Paying Occupational Groups

For this analysis, individual occupations are aggregated and reported by Standard Occupational Classification (SOC) major group. The table that follows the analysis highlights the top paying occupational groups by median hourly earnings.

- The top 10 occupational groups include 63,967 individual jobs; 36.4% of the total jobs reported in the Area.
- The median hourly earnings for nine of the top 10 highest paying occupational groups fall below the state median hourly wages for the same group. The only Area occupational category with median hourly earnings greater than

the state was *Education, Training, and Library Occupations*, at \$19.49 per hour versus \$18.13 per hour, an increase of 7.5%. A further examination of these data reveal that the Area median hourly wage is driven upward by a significant number of Postsecondary Teachers positions which are reported to earn \$28.37 per hour. This higher-than-average salaried position accounts for more jobs than any other occupational code in this category at 3,476 (26.9%).

- The greatest differential in earnings is found in the major group of *Life, Physical, and Social Science Occupations* where the Area median hourly wage falls below the state wage by 18.2%. *Architecture and Engineering Occupations* earn the highest median hourly wage in the Area at \$34.61; however, this wage is still 4.6% below the Oklahoma statewide median hourly earnings for the same occupational group.
- The third-ranked *Legal Occupations* provides competitive Area median hourly earnings of \$30.18 but there are fewer employment opportunities with only 735 jobs reported.
- *Construction and Extraction Occupations* are ranked 10<sup>th</sup> in the Area with median hourly earnings of \$18.78. This salary is 1.7% below the state average and 45.7% below the top-ranked *Architecture and Engineering Occupations*.
- The top three occupational groups in the Area, ordered by the number of jobs represented in 2016, are:
  - *SOC Group 43-0000: Office and Administrative Support Occupations* (25,792 jobs);
  - *SOC Group 41-0000: Sales and Related Occupations* (16,059 jobs); and,
  - *SOC Group 35-0000: Food Preparation and Serving Related Occupations* (15,659 jobs).

While these three major groups represent 57,510 and 32.7% of the total jobs in the Area, none are included in the list of Top 10 Paying Occupational Groups due to low median salaries ranging from \$9.12 to \$13.81 per hour.

SOC Code Group	Occupation Group	2016 Jobs	Area Median Hourly Earnings	State Median Hourly Earnings
17-0000	Architecture and Engineering Occupations	2,689	\$34.61	\$36.26
11-0000	Management Occupations	9,158	\$34.53	\$37.91
23-0000	Legal Occupations	735	\$30.18	\$33.54
29-0000	Healthcare Practitioners and Technical Occupations	8,188	\$25.91	\$30.57
15-0000	Computer and Mathematical Occupations	2,004	\$25.77	\$29.41
13-0000	Business and Financial Operations Occupations	5,049	\$24.26	\$26.83
19-0000	Life, Physical, and Social Science Occupations	1,984	\$22.59	\$27.60
25-0000	Education, Training, and Library Occupations	12,901	\$19.49	\$18.13
49-0000	Installation, Maintenance, and Repair Occupations	8,704	\$19.14	\$19.37
47-0000	Construction and Extraction Occupations	12,555	\$18.78	\$19.10

Source: EMSI, 2017.2

## Ecosystems Impact on Occupations and Salaries

Oklahoma has identified five key, in demand, industry clusters known as “ecosystems” which provide the state with a competitive advantage in a global economy. They exhibit significant potential for employment growth and provide wealth generating employment opportunities. The five key ecosystems’ demand industries produce or provide similar goods and services and therefore have similar needs in workforce, infrastructure, and economic development policy. These ecosystems include Aerospace and Defense, Agriculture and Biosciences, Energy, Information and Finance, and Transportation and Distribution.

In addition to the five statewide ecosystems, four localized complimentary ecosystems important to regional economies have been identified, including Construction, Education, Health Care, and Manufacturing. A summary table of ecosystem data pertinent to the Area is provided below for ease of ecosystem comparison, followed by an analysis of each individual key and complimentary ecosystem.

Ecosystem Comparison				
Ecosystem	Estimated Net Job Growth (2016-2025)	Ecosystem Growth Rate (2016-2015)	Average Annual Earnings	Comments
Aerospace and Defense	231	3.15%	\$53,067	
Agriculture and Bioscience	2,136	14.13%	\$52,965	
Energy	2,483	16.23%	\$69,309	Highest salary. Second most jobs created.
Information and Financial Services	853	11.55%	\$63,799	Second highest salary.
Transportation and Distribution	1,922	19.03%	\$61,629	Second highest growth rate.
Construction	4,148	22.90%	\$49,750	Most new jobs created. Highest growth rate.
Education	-1,248	-5.29%	\$51,885	Employs the most individuals.
Health Care	1,890	9.72%	\$47,668	
Manufacturing	216	4.13%	\$61,639	

## Aerospace and Defense.

In 2016, there were approximately 7,337 jobs in the Aerospace and Defense Ecosystem in the Area with average annual earnings per job of approximately \$53,067. By 2025, employment within this ecosystem is projected to grow to over 7,500. While projections indicate that 448 new jobs will be created, 32 occupational categories are expected to experience a decrease in demand. Overall, employment within the ecosystem will increase by a net 231 jobs; a growth rate of 3.15%.

The list below, ordered alphabetically by occupation, highlights a few of the occupations employed by industries within the Aerospace and Defense Ecosystem in the Area. It should be noted that these positions are not limited to employment within the Aerospace and Defense Ecosystem, but rather, may be in demand by many other sectors, industries, and ecosystems across the state.

SOC	Occupation	Median Hourly Earnings	Education or Experience Level
49-3011	Aircraft Mechanics and Service Technicians	\$25.58	Postsecondary nondegree award
43-3031	Bookkeeping, Accounting, and Auditing Clerks	\$14.34	Some college, no degree
15-1151	Computer User Support Specialists	\$18.13	Some college, no degree
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	\$16.76	Moderate-term on-the-job training
11-1021	General and Operations Managers	\$34.96	Bachelor's degree
49-9041	Industrial Machinery Mechanics	\$24.62	Long-term on-the-job training
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	\$17.03	Moderate-term on-the-job training
51-4041	Machinists	\$17.46	Long-term on-the-job training
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$16.86	Moderate-term on-the-job training
51-4121	Welders, Cutters, Solderers, and Brazers	\$17.82	Moderate-term on-the-job training

Source: EMSI, 2017.2

## Agriculture and Bioscience.

The Area boasts significant agricultural enterprises with the *Crop and Animal Production* sector ranking 8<sup>th</sup> on the Top 10 Employing Sectors list. As a result, in 2016, there were over 15,100 jobs in the Agriculture and Bioscience Ecosystem with average annual earnings per job of \$52,965. By 2025, employment within this ecosystem is projected to grow to approximately 17,265. Only 12 jobs in 10 occupational categories will be lost while 2,148 new jobs will be created. Overall, employment within the ecosystem will increase by a net 2,136 jobs; a growth rate of 14.13%.

The list below, ordered alphabetically by occupation, highlights some of the occupations employed by industries within the Agriculture and Bioscience Ecosystem in the Area. These positions are not limited to employment within this particular ecosystem, but rather, may be in demand by many other sectors, industries, and ecosystems across the state.

SOC	Occupation	Median Hourly Earnings	Education or Experience Level
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	\$15.54	Short-term on-the-job training
51-1011	First-Line Supervisors of Production and Operating Workers	\$28.15	Less than 5 years experience
11-1021	General and Operations Managers	\$34.96	Bachelor's degree
53-3032	Heavy and Tractor-Trailer Truck Drivers	\$20.45	Postsecondary nondegree award
53-7051	Industrial Truck and Tractor Operators	\$15.05	Short-term on-the-job training
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	\$17.03	Moderate-term on-the-job training
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	\$9.41	Short-term on-the-job training
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	\$26.51	Moderate-term on-the-job training
51-3023	Slaughterers and Meat Packers	\$10.82	Short-term on-the-job training
29-1131	Veterinarians	\$33.95	Doctoral or professional degree

Source: EMSI, 2017.2

## Energy.

In 2016, there were 15,296 jobs reported in the Energy Ecosystem with average annual earnings per job of approximately \$69,309, the highest average earnings of any key or regional ecosystem. By 2025, employment within this ecosystem is projected to grow to over 17,700. While projections indicate that approximately 2,582 new jobs will be created, 35 occupational categories are expected to experience a decrease in demand, resulting in the loss of 99. As a result, employment within the ecosystem is anticipated to increase by a net 2,483 jobs, a growth rate of 16.23%.

The list below, ordered alphabetically by occupation, highlights a few of the occupations employed by industries within the Energy Ecosystem in the Area. It should be noted that these positions are not limited to employment within this ecosystem, but rather, may be in demand by many other sectors, industries, and ecosystems across the state.

SOC	Occupation	Median Hourly Earnings	Education or Experience Level
43-3031	Bookkeeping, Accounting, and Auditing Clerks	\$14.34	Some college, no degree
11-1021	General and Operations Managers	\$34.96	Bachelor's degree
53-3032	Heavy and Tractor-Trailer Truck Drivers	\$20.45	Postsecondary nondegree award
49-9041	Industrial Machinery Mechanics	\$24.62	Long-term on-the-job training
17-2171	Petroleum Engineers	\$53.76	Bachelor's degree
51-8093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	\$32.27	Long-term on-the-job training
47-5012	Rotary Drill Operators, Oil and Gas	\$24.59	Moderate-term on-the-job training
47-5013	Service Unit Operators, Oil, Gas, and Mining	\$20.17	Moderate-term on-the-job training
47-5071	Roustabouts, Oil and Gas	\$16.50	Moderate-term on-the-job training
51-4121	Welders, Cutters, Solderers, and Brazers	\$17.82	Moderate-term on-the-job training

Source: EMSI, 2017.2

## Information and Financial Services.

Industries included in Information and Financial Services Ecosystem reported 7,383 jobs in the Area in 2016. By 2025, that figure is expected to increase to over 8,200. The average annual earnings per job are approximately \$63,799. While projections indicate that 914 new jobs will be created, eight occupational categories are expected to experience a decrease in demand, resulting in the loss of 61. As a result, employment within the ecosystem is projected to increase by a net 853 jobs, a growth rate of 11.55%.

The list below, ordered alphabetically by occupation, highlights some of the occupations employed by industries within the Information and Financial Services Ecosystem in the Area. It should be noted that these positions are not limited to employment within the Information and Financial Services Ecosystem, but rather, may be in demand by many other sectors, industries, and ecosystems across the state.

SOC	Occupation	Median Hourly Earnings	Education or Experience Level
13-2011	Accountants and Auditors	\$22.98	Bachelor's degree
43-3011	Bill and Account Collectors	\$14.27	Moderate-term on-the-job training
15-1151	Computer User Support Specialists	\$18.13	Some college, no degree
11-3031	Financial Managers	\$40.95	Bachelor's degree
43-1011	First-Line Supervisors of Office and Administrative Support Workers	\$19.02	Less than 5 years experience
11-1021	General and Operations Managers	\$34.96	Bachelor's degree
43-4131	Loan Interviewers and Clerks	\$14.68	Short-term on-the-job training
13-2072	Loan Officers	\$28.92	Bachelor's degree
43-4141	New Accounts Clerks	\$15.80	Moderate-term on-the-job training
43-3071	Tellers	\$11.54	Short-term on-the-job training

Source: EMSI, 2017.2

## Transportation and Distribution.

In 2016, there were 10,102 jobs in the Transportation and Distribution Ecosystem in the Area with average annual earnings per job of approximately \$61,629. By 2025, employment will grow to over 12,000. While it is anticipated that 1,947 new jobs will be created, 21 occupational categories will decline in employment, losing 25 jobs. As a result, the Transportation and Distribution Ecosystem is projected to gain a net 1,922 jobs, a growth rate of 19.03%.

The list below, arranged alphabetically by occupation, highlights a few of the occupations employed by industries within the Transportation and Distribution Ecosystem in the Area. It should be noted that these positions are not limited to employment within this particular ecosystem, but rather, may be in demand by many other sectors, industries, and ecosystems across the state.

SOC	Occupation	Median Hourly Earnings	Education or Experience Level
43-3031	Bookkeeping, Accounting, and Auditing Clerks	\$14.34	Some college, no degree
53-7011	Conveyor Operators and Tenders	\$14.96	Short-term on-the-job training
11-1021	General and Operations Managers	\$34.96	Bachelor's degree
53-3032	Heavy and Tractor-Trailer Truck Drivers	\$20.45	Postsecondary nondegree award
53-7051	Industrial Truck and Tractor Operators	\$15.05	Short-term on-the-job training
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	\$11.36	Short-term on-the-job training
53-3033	Light Truck or Delivery Services Drivers	\$13.37	Short-term on-the-job training
51-8093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	\$32.27	Long-term on-the-job training
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	\$26.51	Moderate-term on-the-job training
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	\$26.34	Bachelor's degree

Source: EMSI, 2017.2

## Health Care (Regional Complementary).

While Health Care has not been identified as a key ecosystem, it is considered a regional complementary ecosystem and is very important to the Area. Over 19,000 jobs were reported in 2016 in Health Care in the Area, with average annual earnings per job of approximately \$47,668. By 2025, employment within this ecosystem is projected to increase to 21,287. Approximately 1,978 new jobs will be created, with a loss of only 88 from 19 occupational categories. This results in a net increase in employment in Health Care of 1,890 jobs, a growth rate of 9.72%

The list below, organized alphabetically based on occupation, highlights some of the occupations employed by industries within the Health Care regional complementary ecosystem in the Area. While these positions appear to be highly specialized within the Health Care sector, it must be remembered that other industries do employ health care specialists and there is competition among several other sectors, industries, and ecosystems for these skilled workers.

SOC	Occupation	Median Hourly Earnings	Education or Experience Level
31-9091	Dental Assistants	\$14.71	Postsecondary nondegree award
31-1011	Home Health Aides	\$9.31	Short-term on-the-job training
29-2061	Licensed Practical and Licensed Vocational Nurses	\$17.54	Postsecondary nondegree award
11-9111	Medical and Health Services Managers	\$35.08	Bachelor's degree
31-9092	Medical Assistants	\$12.43	Postsecondary nondegree award
43-6013	Medical Secretaries	\$13.43	Short-term on-the-job training
31-1014	Nursing Assistants	\$10.67	Postsecondary nondegree award
29-1051	Pharmacists	\$52.97	Doctoral or professional degree
29-2052	Pharmacy Technicians	\$12.80	Moderate-term on-the-job training
29-1141	Registered Nurses	\$26.56	Associates degree

Source: EMSI, 2017.2

## Construction (Regional Complementary).

Construction is also a regional complementary ecosystem with over 18,100 jobs reported in 2016. The average annual earnings per job in the Construction ecosystem were \$49,750. By 2025, employment is projected to increase to 22,297. Approximately 4,178 new jobs will be created, with a loss of only 30 from 21 occupational categories. This results in a net increase in employment in Construction of 4,148 jobs, a growth rate of 22.90%.

The list below, arranged alphabetically by occupation, highlights some of the occupations employed by industries within the Construction regional complementary ecosystem in the Area. It should be noted that these positions are not limited to employment within Construction, but rather, may be in demand by many other sectors, industries, and ecosystems across the state.

SOC	Occupation	Median Hourly Earnings	Education or Experience Level
47-2031	Carpenters	\$17.05	Apprenticeship
47-2061	Construction Laborers	\$14.06	Short-term on-the-job training
47-2111	Electricians	\$20.86	Apprenticeship
51-1011	First-Line Supervisors of Construction Trades and Extraction Workers	\$30.86	5 years or more experience
11-1021	General and Operations Managers	\$34.96	Bachelor's degree
51-4041	Machinists	\$17.46	Long-term on-the-job training
47-2073	Operating Engineers and Other Construction Equipment Operators	\$18.28	Moderate-term on-the-job training
47-2152	Plumbers, Pipefitters, and Steamfitters	\$17.60	Apprenticeship
41-2031	Retail Salespersons	\$9.59	Short-term on-the-job training
51-4121	Welders, Cutters, Solderers, and Brazers	\$17.82	Moderate-term on-the-job training

Source: EMSI, 2017.2

## Education (Regional Complementary).

The largest employing ecosystem in the Area, the regional complementary ecosystem of Education accounted for approximately 23,594 jobs in 2016, with average earnings per job of \$51,885. Education is the only ecosystem in the Area projected to decrease in jobs overall. While 412 new jobs will be created, 1,660 will be lost from 220 occupational categories. As a result, by 2025, employment in the Education Ecosystem is projected to decrease by -1,248 jobs, a loss of -5.29%.

The list below, presented in alphabetical order by occupation, highlights some of the occupations employed by industries within the Education Ecosystem. Similar to the Health Care regional complementary ecosystem, many of the occupations within Education are extremely specialized but may still be in demand from other sectors, industries, and ecosystems across the state.

SOC	Occupation	Median Hourly Earnings	Education or Experience Level
43-3031	Bookkeeping, Accounting, and Auditing Clerks	\$14.34	Some college, no degree
25-2032	Career/Technical Education Teachers, Secondary School	\$21.42	Bachelor's degree
11-9033	Education Administrators, Elementary and Secondary School	\$33.82	Master's degree
21-1012	Educational, Guidance, School, and Vocational Counselors	\$20.55	Master's degree
25-2021	Elementary School Teachers, Except Special Education	\$18.69	Bachelor's degree
25-2012	Kindergarten Teachers, Except Special Education	\$18.09	Bachelor's degree
25-2022	Middle School Teachers, Except Special Education and Career/Technical Education	\$20.50	Bachelor's degree
25-1099	Postsecondary Teachers	\$28.37	Doctoral or professional degree
25-3098	Substitute Teachers	\$8.75	Bachelor's degree
25-9041	Teacher Assistants	\$8.89	Some college, no degree

Source: EMSI, 2017.2

## Manufacturing (Regional Complementary).

The regional complementary ecosystem of Manufacturing is unique in that it is not typically analyzed as a distinctive, separate ecosystem. Rather, components of the Manufacturing sector are consistently embedded throughout each key ecosystem and included in those analyses. However, it is interesting and broadens the base of knowledge about the sector to focus an analysis specifically on manufacturing-related occupations.

The Manufacturing regional complementary ecosystem accounted for approximately 5,200 jobs in 2016, with average earnings per job of \$61,639. By 2025, employment is projected to increase to over 5,400 jobs, with 305 new jobs created and 89 jobs lost in 37 occupational categories, a growth rate of 4.13%

The list below, arranged in alphabetical order by occupation, highlights a few of the occupations employed by industries within the Manufacturing regional complementary ecosystem in the Area. These positions are not limited to employment strictly within Manufacturing Ecosystem industries, but rather, may be in demand by many other sectors, industries, and ecosystems across the state.

SOC	Occupation	Median Hourly Earnings	Education or Experience Level
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	\$16.76	Moderate-term on-the-job training
51-1011	First-Line Supervisors of Production and Operating Workers	\$28.15	Less than 5 years experience
11-3051	Industrial Production Managers	\$44.66	Bachelor's degree
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	\$17.03	Moderate-term on-the-job training
51-4041	Machinists	\$17.46	Long-term on-the-job training
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$16.86	Moderate-term on-the-job training
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	\$26.51	Moderate-term on-the job training
47-2211	Sheet Metal Workers	\$12.44	Apprenticeship
51-2092	Team Assemblers	\$14.07	Moderate-term on-the-job training
51-4121	Welders, Cutters, Solderers, and Brazers	\$17.82	Moderate-term on-the-job training

Source: EMSI, 2017.2

## Appendix A: NAICS Industry Sectors with associated sample industries

Sector Code	Sector Name Sample industries/descriptions	Sector Description
11	Agriculture, Forestry, Fishing, and Hunting	Activities of this sector are growing crops, raising animals, harvesting timber, and harvesting fish and other animals from farms, ranches, or the animals' natural habitats.
	Crop Production	Oilseed, grain, vegetable, fruit, and tree nut farming; greenhouse, nursery and floriculture
	Animal Production and Aquaculture	Cattle, hog, poultry, sheep, and goat farming; egg production, aquaculture
	Forestry and Logging	Timber tract operations, forest nurseries, logging.
	Fishing, Hunting and Trapping	
21	Mining, Quarrying, and Oil and Gas Extraction	Activities of this sector are extracting naturally occurring mineral solids such as coal and ore; liquid minerals such as crude petroleum; and gases such as natural gas; and beneficiating (e.g., crushing, screening, washing, and floatation) and other preparation at the mine site, or as part of mining activity.
	Oil and Gas Extraction	
	Mining (except Oil and Gas)	Coal, metal ore, and nonmetallic mineral mining and quarrying.
22	Utilities	Activities of this sector are generating, transmitting, and/or distributing electricity, gas, steam, and water, and removing sewage through a permanent infrastructure of lines, mains, and pipe.
	Electric Power	Generation, transmission, and distribution.
	Natural Gas Distribution	
	Water, Sewage and Other Systems	Water supply and irrigation systems, sewage treatment facilities, and steam and air-conditioning supply.
23	Construction	Activities of this sector are erecting buildings and other structures (including additions); heavy construction other than buildings; and alterations, reconstruction, installation, and maintenance and repairs.
	Construction of buildings	Residential and nonresidential building construction.
	Heavy and Civil Engineering Construction	Utility system construction; land subdivision; highway, street, and bridge construction; and other heavy and civil engineering construction.
	Specialty Trade Contractors	Foundation, structure, building exterior, building equipment, building finishing, and other specialty trade contractors.

31-33	Manufacturing	Activities of this sector are the mechanical, physical, or chemical transformation of materials, substances, or components into new products.
	Food Manufacturing	Animal food manufacturing; grain/oilseed milling; sugar/confectionery product manufacturing; dairy product manufacturing; animal slaughtering/processing; seafood product preparation/packaging; bakeries/tortilla manufacturing.
	Beverage and Tobacco Product Manufacturing	
	Textile Mills/Textile Product Mills	Fiber, yarn and thread mills; fabric mills; textile and fabric finishing and fabric coating mills. Textile furnishings mills; other textile product mills.
	Apparel Manufacturing	Apparel knitting mills; cut and sew apparel manufacturing; apparel accessories and other apparel manufacturing.
	Leather/Allied Product Manufacturing	Leather and hide tanning and finishing; footwear manufacturing; other leather and allied product manufacturing.
	Wood Product Manufacturing	Sawmills and wood preservation; veneer, plywood, and engineered wood product manufacturing; other wood product manufacturing.
	Paper Manufacturing	Pulp, paper, and paperboard mills.
	Printing and Related Support Activities	
	Petroleum and Coal Products Manufacturing	
	Chemical Manufacturing	Basic chemical, resin, synthetic rubber and artificial and synthetic fibers and filaments manufacturing; pesticides, fertilizer, and other agricultural chemical manufacturing; pharmaceutical and medicine manufacturing; paint, coating, and adhesive manufacturing; soap, cleaning compound, and toilet preparation manufacturing.
	Plastics and Rubber Products Manufacturing	
	Nonmetallic Mineral Product Manufacturing	Clay product manufacturing; glass, cement, lime, gypsum, and other nonmetallic mineral product manufacturing.
	Primary Metal Manufacturing	Iron and steel mills; alumina and aluminum production; foundries
	Fabricated Metal Product Manufacturing	Forging/stamping; Cutlery/hand tool manufacturing; Architectural/structural metals manufacturing; Boiler, tank, and shipping container manufacturing; Hardware manufacturing; Machine shops, turned product, screw/nut/bolt manufacturing.
	Machinery Manufacturing	Agriculture/construction/mining machinery; industrial machinery; commercial/service industry machinery;

		ventilation/heating/air-conditioning/commercial refrigeration equipment manufacturing.
	Computer and Electronic Product Manufacturing	Computer/peripheral equipment manufacturing; communications equipment manufacturing; audio/video equipment manufacturing; semiconductor/other electronic component manufacturing.
	Electrical Equipment, Appliance, and Component Manufacturing	Electric lighting, household appliance, electrical equipment, other electrical equipment and component manufacturing.
	Transportation Equipment Manufacturing	Motor vehicle, trailer, motor vehicle parts, aerospace product and parts, railroad, ship, boat, other transportation equipment manufacturing.
	Furniture and Related Product Manufacturing	Household, institutional furniture, office furniture manufacturing.
	Miscellaneous Manufacturing	
42	Wholesale Trade	Activities of this sector are selling or arranging for the purchase or sale of goods for resale; capital or durable non-consumer goods; and raw and intermediate materials and supplies used in production, and providing services incidental to the sale of the merchandise.
	Merchant Wholesalers, Durable Goods	Motor vehicle/motor vehicle parts/supplies; furniture; lumber and other construction materials; professional and commercial equipment and supplies; metal and mineral; household appliances/electrical/electronic goods; hardware/plumbing/heating equipment wholesalers
	Merchant Wholesalers, Nondurable Goods	Paper/paper products; drugs/druggist sundries; apparel/piece goods/notions; grocery; farm products; chemical and allied products; petroleum/petroleum products wholesalers
	Wholesale Electronic Markets and Agents and Brokers	
44-45	Retail Trade	Activities of this sector are retailing merchandise generally in small quantities to the general public and providing services incidental to the sale of the merchandise.
	Motor Vehicle and Parts Dealers	
	Furniture and Home Furnishings Stores	
	Electronics and Appliance Stores	
	Building Material and Garden Equipment and Supplies Dealers	
	Food and Beverage Stores	Grocery, specialty food, beer/wine/liquor stores
	Health and Personal Care Stores	

	Gasoline Stations	
	Clothing and Clothing Accessories Stores	Clothing, shoe, jewelry/luggage/leather goods stores.
	Sporting Goods, Hobby, Musical Instrument, and Book Stores	
	General Merchandise Stores	
	Miscellaneous Store Retailers	Florists, office supplies/stationery/gifts, used merchandise, art dealers, pet supply stores.
	Non-store Retailers	Electronic shopping/mail order houses; vending machine operators; and direct selling establishments.
48-49	Transportation and Warehousing	Activities of this sector are providing transportation of passengers and cargo, warehousing and storing goods, scenic and sightseeing transportation, and supporting these activities.
	Air Transportation	
	Rail Transportation	
	Water Transportation	
	Truck Transportation	
	Transit and Ground Passenger Transportation	
	Pipeline Transportation	
	Scenic and Sightseeing Transportation	
	Support Activities for Transportation	
	Postal Service	
	Courier and Messengers	
	Warehousing and Storage	
51	Information	Activities of this sector are distributing information and cultural products, providing the means to transmit or distribute these products as data or communications, and processing data.
	Publishing industries (except Internet)	Newspaper, periodical, book directory publishers; software publishers.
	Motion Picture and Sound Recording Industries	
	Broadcasting (except Internet)	Radio/TV, cable, other subscription programming.
	Telecommunications	Wired, wireless, and satellite.
	Data Processing, Hosting and Related Services	
	Other Information Services	News syndicates, libraries/archives, Internet publishing/broadcasting/web search portals.

52	Finance and Insurance	Activities of this sector involve the creation, liquidation, or change in ownership of financial assets (financial transactions) and/or facilitating financial transactions.
	Monetary Authorities – Central Bank	
	Credit Intermediation and Related Activities	
	Securities, Commodity Contracts, and other Financial Investments and Related Activities	
	Insurance Carriers and Related Activities	
	Funds, Trusts, and other Financial Vehicles	
53	Real Estate and Rental and Leasing	Activities of this sector are renting, leasing, or otherwise allowing the use of tangible or intangible assets (except copyrighted works), and providing related services.
	Real Estate	
	Rental and Leasing Services	
	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)	
54	Professional, Scientific, and Technical Services	Activities of this sector are performing professional, scientific, and technical services for the operations of other organizations.
	Professional, Scientific, and Technical Services	Legal; accounting/tax preparation/bookkeeping/payroll; architectural/engineering; specialized design services; computer systems design; management/scientific/technical consulting; scientific research/development; advertising/public relations.
55	Management of Companies and Enterprises	Activities of this sector are the holding of securities of companies and enterprises, for the purpose of owning controlling interest or influencing their management decisions, or administering, overseeing, and managing other establishments of the same company or enterprise and normally undertaking the strategic or organizational planning and decision-making role of the company or enterprise.
	Management of Companies and Enterprises	Companies and enterprises; offices of bank holding companies; offices of other holding companies; corporate/subsidiary/regional managing offices.
56	Administrative and Support and Waste Management and Remediation Services	Activities of this sector are performing routine support activities for the day-to-day operations of other organizations.
	Administrative and Support Services	Office administrative services; facilities support services; employment services; business support services; travel

		arrangement and reservation services; investigation and security services; services to buildings and dwellings.
	Waste Management and Remediation Services	Waste collection; waste treatment and disposal; remediation and other waste management services.
61	Educational Services	Activities of this sector are providing instruction and training in a wide variety of subjects.
	Educational Services	Elementary and secondary schools, junior colleges, colleges/universities/professional schools; business schools; computer/management training; technical/trade schools; other schools and instruction; educational support services.
62	Health Care and Social Assistance	Activities of this sector are providing health care and social assistance for individuals.
	Ambulatory Health Care Services	Physicians, dentists, other health practitioners; outpatient care; medical and diagnostic laboratories; home health care services; other ambulatory health care services.
	Hospitals	
	Nursing and Residential Care Facilities	
	Social Assistance	Individual and family services; community food and housing/emergency/other relief services; vocational rehabilitation services; child day care services.
71	Arts, Entertainment, and Recreation	Activities of this sector are operating or providing services to meet varied cultural, entertainment, and recreational interests of their patrons.
	Performing Arts, Spectator Sports, and Related Industries	
	Museums, Historical Sites and Similar Institutions	
	Amusement, Gambling, and Recreation Industries	
72	Accommodation and Food Services	Activities of this sector are providing customers with lodging and/or preparing meals, snacks, and beverages for immediate consumption.
	Special Food Services	Food service contractors; caterers; mobile food services
	Drinking Places (Alcoholic Beverages)	
	Restaurants and Other Eating Places	
81	Other Services (Except Public Administration)	Activities of this sector are providing services not elsewhere specified, including repairs, religious activities, grantmaking, advocacy, laundry, personal care, death care, and other personal services.
	Repair and Maintenance	Automotive repair; electronic repair; commercial and industrial machinery repair; personal/household goods repair

	Personal and Laundry Services	Personal care; death care; dry-cleaning/laundry services; pet care (except veterinary); photofinishing; parking lots and garages
	Religious, Grantmaking, Civic, Professional, and Similar Organizations	
	Private Households	
90-92	Public Administration (Government)	Activities of this sector are administration, management, and oversight of public programs by Federal, State, and local governments.
	Executive, Legislative, and Other General Government Support	
	Justice, Public Order, and Safety Activities	
	Administration of Human Resource Programs	
	Administration of Environmental Quality Programs	
	Administration of Housing Programs, Urban Planning, and Community Development	
	Administration of Economic Programs	
	Space Research and Technology	
	National Security and International Affairs	